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No. 3.

THE SURGICAL IMPORTANCE OF THE "INTERSCAPULAR GLAND."

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Though commonplace to all surgeons of experience, it is apparently unknown to the general public that cancer in its early and later stages behaves towards treatment as if it were two entirely different diseases. An early superficial cancer of the free part of the tongue, if treated with due regard to modern principles, should be, and is, curable in practically every case. Contrast this with our operative results:—

Patients with carcinoma of the tongue who have been subjected to operation and are alive at the end of three years without recurrence are usually stated to be about 20%, *i.e.*, recurrence has been the rule, and the most frequent site of this recurrence has been in the lymphatic tissue of the neck. If one's results are to improve it must be along one of two lines: either the general public must be educated, whenever a suspicious lesion occurs, to consult a medical man early, or the surgeon must enlarge his knowledge of the anatomy and physiology of the lymphatic system of the neck, so that he may be able to treat advanced cases more efficiently.

The Department of Public Health of New South Wales has taken an important step in bringing the subject of cancer, especially its early symptoms and signs, before the public, in issuing a poster, which emphasizes the fact that the only cure at present known is its early and complete removal.

A list of symptoms and signs indicative of early cancerous disease is issued—and anyone evidencing such condition is urgently desired to consult a medical man without delay.

However, it is doubtful if the public health authorities will ever be able to aid much by their excellent advice, so long as the treatment of advanced cases furnishes the public with so many terrible object-lessons in the apparent intractability of the disease.

Let us now turn to the study of the lymphatic system of the neck, a subject neither very fully treated in the text-books of anatomy usually placed in the students' hands, nor very fully studied in the dissecting-room.

Development.

It was once thought that lymphatic capillaries and vessels were formed by the coalescence of lymph spaces; but recent investigation seems to prove that the lymphatic system owes its origin to the sprouting of hollow endothelial buds from the walls of certain veins. The development of this system may be divided into two stages:—

(a) *Primitive System of Sacs.*—The primary stage consists of a series of isolated lymph sacs, which are clearly derived from the walls of certain veins, and

which later become united into a system by the thoracic duct.

(b) *Peripheral System of Ducts.*—The secondary stage involves the peripheral growth of lymphatic vessels, which sprout from the endothelial lining of these primitive sacs and spread out over all the body, excepting the central nervous system. This network is responsible for the formation of lymph capillaries, lymph vessels, and lymphatic glands.

The jugular sac is formed in the following manner: In the early stages of development of the foetus a

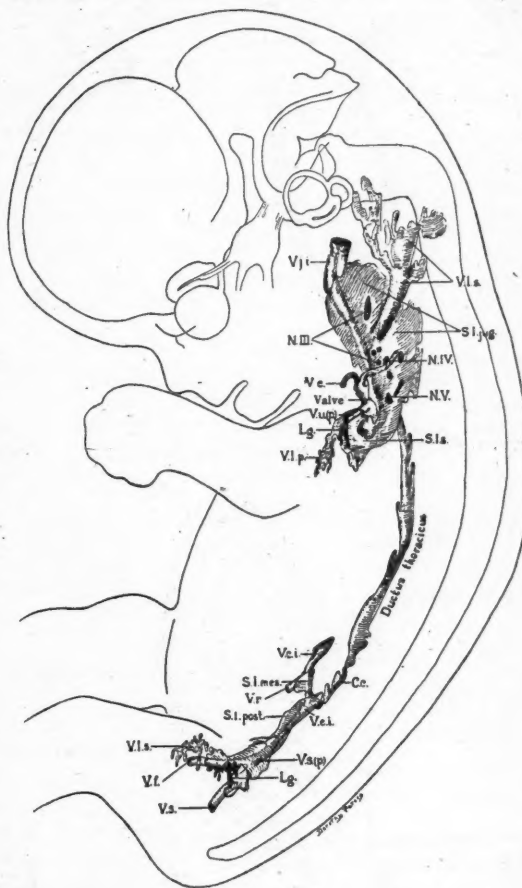


Figure 1.

Primitive Lymphatic System of Human Embryo 30 mm. long.
Man's Collection. \times about 5.8.

| | | | |
|---------------------|------------------------------|-----------|------------------------|
| c.c. | = Cisterna Cyl. | l.g. | = Lymphatic Gland. |
| n.iii., n.iv., n.v. | = Cervical Nerves. | s.i. jug. | = Jugular Lymph Sac. |
| s.l.m. | = Retroperitoneal Lymph Sac. | s.i.p. | = Posterior Lymph Sac. |
| s.i.s. | = Subclavian Lymph Sac. | c. | = Cephalic Vein. |
| v.c.i. | = Inferior Vena Cava. | v.f. | = Femoral Vein. |
| v.j.i. | = Internal Jugular Vein. | v.i.p. | = Vasa Lymphatica Pro- |
| v.l.s. | = Vasa Lymphatica Super- | funda. | |
| v.s. | = Sciatric Vein. | v.r. | = Renal Vein. |
| | | v.v. (p) | = Primitive Ulna Vein. |

series of branches occurs along the course of the internal jugular vein; this subsequently forms a capillary plexus.

These isolated capillaries coalesce to form symmetrical endothelial-lined sacs, which subsequently rejoin the vein in such a way as to form a valve at the opening.

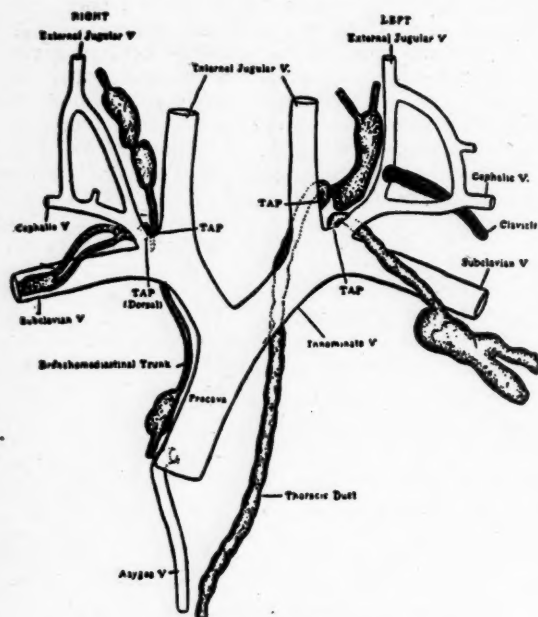


Figure II.
Structure of Lymphatics in Pig-tailed Macaque
(after McClure and Silvester).

These sacs are first found in the 10 mm. foetus, lying laterally to the internal jugular (anterior car-

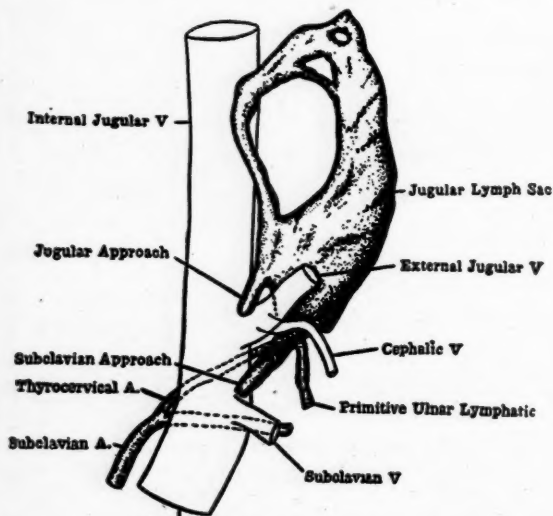


Figure III.
Left Jugular Sac of 11 mm. Cat Embryo (after McClure and Silvester).
dinal) veins, near their junction with the subclavian, and attain their maximum length of 5 mm. in a 30 mm. foetus.

The sacs are now transformed into a lymphatic capillary plexus, through the subdivision of the lumen

of the sac, by bands of connective tissue, and out of this plexus of lymphatic capillaries the lymph glands are evolved.

The sac is further complicated by being pierced by the third, fourth and fifth cervical nerves. In the 30 mm. foetus an extension of the jugular sac occurs along the primitive ulnar vein into the arm bud, giving rise to the subclavian sac. The latter apparently becomes subsequently transformed into the axillary glands and the so-called "dark fat" in the axilla.

The earliest peripheral lymphatics that have been made out in the human embryo are those from the jugular sac to the skin of the neck, which first appear in a 20 mm. embryo.

These skin lymphatic vessels spread out in a radial direction from the jugular sac to the head, neck and shoulder, so that the vessels gradually extend from lymphatic to non-lymphatic areas.

Formation of Lymphatic Glands.

The first step in the formation of a lymph gland is the appearance of a plexus of lymphatic capillaries, and this is true whether the gland is formed from one of the primitive sacs or along the course of the peripheral lymphatic vessels.

The second step is the heaping up of lymphocytes, so as to form lymph follicles in the connective tissue septa, which septa now carry vascular capillaries.

The third stage is the formation of a sinus out of the plexus of lymphatic capillaries, which only differs from the primary lymphatic plexus in the extreme thinness of the connective tissue septa.

In a haemolymph gland the follicle is surrounded by a blood, instead of a lymph, sinus.

Lymphatic glands may therefore be divided into primary and secondary:—

(1) Primary lymphatic glands are defined as those which develop from the lymph sacs and include the deep cervical, pre-aortic and iliac glands. All lymph drains through these chains.

(2) Secondary lymphatic glands develop around plexuses of the peripheral vessels. In the case of the tongue these include that part of the pericervical glandular circle which lies in the submental and digastric triangles.

Turning now to the condition of the adult, a structure at this stage may be mentioned which has been variously designated as the intercapular gland (Hatai), *Fettpolster* (Merkel), and *coussinet adipeux* (Charpy).

This "gland" consists of a lobulated mass, which, in the living subject, is pink in colour, looking not unlike fresh pancreas. The lobules contain scattered lymph glands, and they are bound together by connective tissue septa. The gland varies in volume with the condition of the subject, but is always constant, and all its parts are distinct. It consists of a body lying in the posterior triangle and four processes which radiate towards the mastoid process, sternal end of clavicle, head of the humerus, and the upper thoracic spines respectively (Bonnot).

The body of the gland lies in the posterior triangle, between the muscles forming the floor and the investing layer of deep fascia forming the roof of the tri-

angle, and its anterior border abuts against and overlaps the internal jugular vein. It contains the deep cervical lymphatic glands, and is traversed by branches of the cervical plexus, the posterior belly of



Figure IV.

Interscapular Gland in Adult (Edmond Bonnot).

- | | |
|--|----------------------------|
| a = Large Compound Lymph and Hemolymph Glands. | g.p. = Glenoid Process. |
| b = Parotid Gland. | j = Internal Jugular Vein. |
| c = Submaxillary Gland. | m.p. = Mastoid Process. |
| c.p. = Cervical Process. | n = Lymphatic Glands. |
| g = Interscapular Gland. | s.p. = Scapular Process. |

the omohyoid and the transverse vessels of the neck. The mastoid process extends up under the insertion of sterno-mastoid as far as the posterior belly of digastric, and falls into the interval between the splenius muscle and internal jugular vein. The clavicular process lies in the anterior part of the subclavian triangle, whilst the glenoid process lies under the trapezius, filling up the acute angle formed between the clavicle and the spine of scapula. The fourth or scapular process forms a T-shaped mass lying over the rhomboid muscles, and joins the body of the gland at the postero-superior angle of the scapula.

Anatomy of the Lymphatics of the Tongue.

The course of the lymphatic vessels of the tongue, influencing, as it does, the spread of epithelioma, is well known to all operating surgeons. This subject is very concisely put by Poirier and Cunéo: "The lymphatics of the tongue terminate in the submental, the submaxillary glands, and in the glands of the deep cervical chain, but the relative importance of these different glandular groups, considered as termini of the lymphatics of the tongue, is by no means the same. The submental glands only receive lym-

phatics from the extreme tip of the tongue. As regards the submaxillary glands, only the most anterior of them have lingual lymphatics as direct affluents, and the three or four trunks which do end in these glands, drain a region which is limited to the lateral borders, and to the marginal part of the dorsum. On the other hand, all the glands of the internal jugular chain, included between the posterior belly of digastric (jugulo-digastric gland) and the spot where the vessels are crossed by the omohyoid (supra-omohyoid gland), may receive lymphatics coming from the tongue, *i.e.*, the upper sub-sternomastoid glands. But, here again, the exact number of affluents each receives has to be determined; and we have seen that the highest of these glands, *i.e.*, the gland placed over the internal jugular, immediately beneath the posterior belly of the digastric, should be regarded as the principal meeting-place of the lingual lymphatics. Generally speaking, the more anterior the lingual origin of the lymphatics, the lower is the gland of the upper sub-sternomastoid chain into which it passes. A point of special importance is to be noted in connexion with the median or central lymphatics of the tongue, namely, that, according to Piersol, they may pass to either side of the middle line, thus accounting for implication of the glands of the neck on the side opposite to that upon which a cancerous ulcer is found.

"The deep cervical chain constitutes a large mass, which, although in reality continuous, may be regarded as being formed of two groups: the sub-sternomastoid and the supraclavicular groups. The sub-sternomastoid glands extend in the vertical plane from the base of the skull to the junction of the internal jugular and subclavian veins, and although they constitute in appearance a continuous chain, we may divide them into an upper and a lower, according to their relation to the omohyoid muscle. The supraclavicular glands lie behind the internal jugular vein, resting upon the *levator scapulae* and *scalenus medius* muscles and the brachial plexus; the lowermost glands are divided into a superficial and a deep cluster by the omohyoid muscle. In certain pathological cases, it seems as though there is an actual increase, but this is only because the glands, which in the normal state were imperceptible, are now rendered visible."

Pathological Considerations.

The cardinal point in the morbid anatomy of epithelioma of the tongue is a spreading infection of lymphatic vessels and glands, but unfortunately the tongue cannot be divided up with more than approximate accuracy into different areas corresponding to a definite group of lymphatic glands.

In other words, no surgeon is able to prove that, in a given case, lymphatic extension has taken a certain course towards a certain gland group, and towards that group only; hence all operations for the disease should invariably include the removal of the regional lymphatic area. The same rule should apply when we have one of the glands of the regional lymphatic area involved by carcinoma, *viz.*, the removal of all groups primarily connected with the affected gland.

Now it has been shown that, after the lymphatic stream has been blocked, as by carcinomatous invasion, the lymph may flow in any direction, and every sort of irregularly may occur in the further metastases; hence it behoves the surgeon in all cases of involvement of a member of the deep cervical chain to remove not only the regional lymphatics of the tongue, but also the whole of the deep cervical lymphatic glands.

The type of operation for the cure of epithelioma of the tongue should therefore vary according as to whether the regional glands are involved with carcinoma or not.

Clinical Considerations.

As stated at the commencement of this paper, cancer in the early stages and cancer in its later behave in relation to treatment as if they were two entirely different diseases. Furthermore, we are not entirely without clinical means of forming some estimate as to the apparent curability of a given case.

An early epithelioma, although attached to the underlying tissues, is typically a button-like surface growth, which is well defined and marked off from the adjacent tissues by an abrupt change of consistency. After a variable time, usually about two to three months, the epithelioma seems to pass a critical point, and begins to infiltrate the deeper tissues, whilst its outline becomes obscure. In other words, the button-like surface growth becomes converted into a tumour invading the substance of the tongue. It is in this early stage that epithelioma can be removed with a practical certainty of cure, whilst deeper extension increases the difficulty of obtaining this result.

If local malignancy were the chief difficulty in establishing a cure, it is obvious that, once the distinction between the two forms of the affection is recognized, the operation results will improve, but as is well known, the main difficulty lies in the involvement of the lymphatic glands. Hence, at the present day, a large number of patients are cured of their primary epitheliomatous focus, only to die miserably from glandular involvement.

Turning to the question of glandular involvement, if the involved glands remain hard and well defined, even though numerous, there is still the hopeful probability of cure, provided a thorough operation is performed. On the other hand, if the glands, although not necessarily large or numerous, are ill-defined, giving an inflammatory rather than a carcinomatous impression, then the chances of cure by any operation, however large, are remote. A dozen hard, sharply defined epitheliomatous glands are less serious than a single one of which the outline is obscure.

The prognosis of buccal carcinoma, therefore, should be based on physical signs rather than upon the duration of the disease.

Operative Consideration.

The operative procedure should not be entirely a question of anatomy, but should be influenced by the clinical consideration, so that patients may not be submitted to more serious operative treatment than is absolutely necessary. As we have already seen, the morbid anatomy of the condition points to the neces-

sity of two types of gland operation, according as to whether the glands are much involved or only slightly so.

(a) *Gland Involvement Clinically Slight or Absent.*—One of the first systematic attempts towards removal of the regional lymphatics of the tongue was performed by Butlin, who removed the "contents of the anterior triangle." These contents included "the lymphatic glands, the superficial portion of the submaxillary gland, fat, connective tissue, a portion of the omohyoid and platysma muscle, as well as quantities of veins, both large and small."

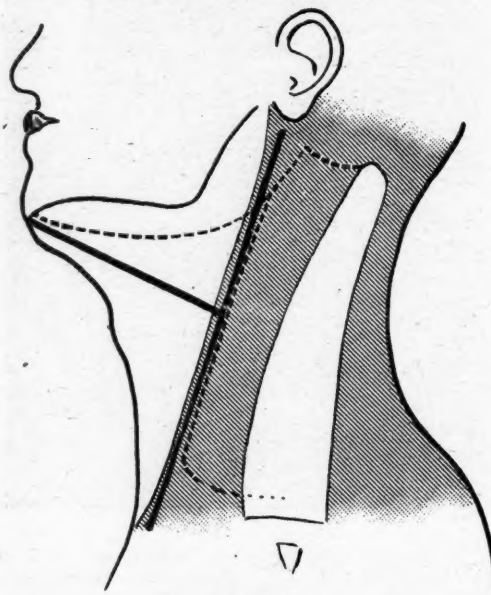


Figure V.
Butlin's Incision (dark). Maitland's Incision (dotted).

The lower portion of the parotid gland was cut away, to ensure complete removal of the deeper glands.

This dissection, practised so successfully by Butlin, requires extension in two directions, namely, superiorly and posteriorly. (See Figure VII.)

(i.) Superiorly, in order that the chain of upper sub-sternomastoid glands may be removed to their upper extremity against the skull, as it is in this region that recurrence is especially likely to occur.

(ii.) Posteriorly, the dissection should be carried backwards deeply to the posterior border of the sternomastoid or preferably to the anterior border of trapezius, so as to include the glands lying along the posterior border of sternomastoid.

Both these conditions are met with in Maitland's operation, which gives easy access to the upper deep cervical glands, which, moreover, are reached only with difficulty when the sternomastoid is preserved. Furthermore, the convalescence is shorter, as the absence of the sternomastoid leaves no cavity for the accumulation of serum.

(b) *Gland Involvement Extensive.*—It is remarkable how the common and internal carotids, as well as

the vagus, escape being involved by the glands until very late. These epitheliomatous glands tend to spread backwards, to involve the muscles forming the floor of the posterior triangle rather than attack the carotid vessels.

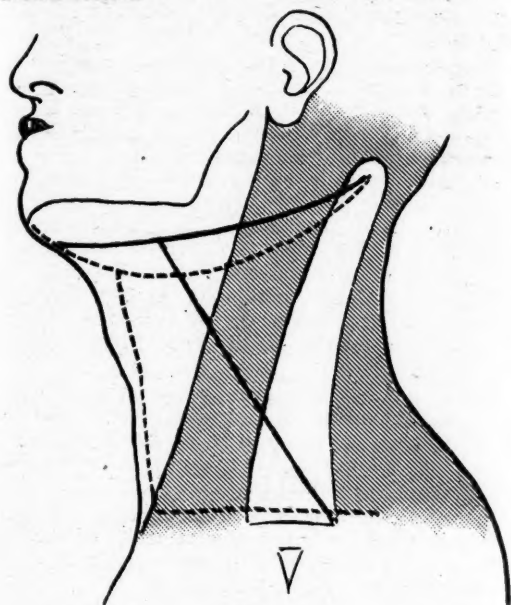


Figure VI.
Bastianelli's Incision (dark). Ashhurst's Incision (dotted).

They frequently attack the accessory nerve, sternomastoid muscle and internal jugular vein, all of which are evidently involved or in suspicious relation to the gland masses, and must therefore be removed.

Incision.

The best access to the side of the neck is obtained by Ashhurst's incision, which may now be described in detail:—

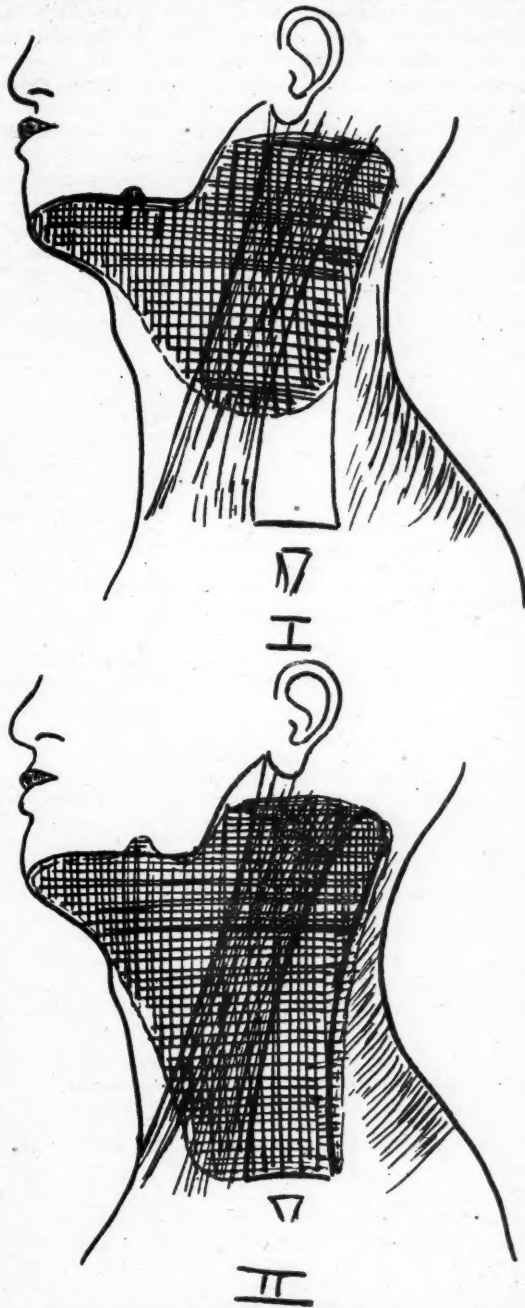
The upper part of the incision is made from the point of the chin downwards in the middle line to the hyoid bone, and thence along the side of the neck affected, following the folds of the skin, well below the body of the mandible to the mastoid. The lower part of the incision commences from the above incision at the hyoid, near the middle line, and passes straight downwards to the suprasternal notch; it is continued thence along the clavicle to the acromium. The incision passes only as deep as the platysma, and the flaps thus outlined are then raised.

The anterior flap is undermined beyond the middle line, the posterior towards the trapezius, as a base, whilst the superior is turned up over the mandible. In this manner very free exposure of the whole side of the neck is obtained.

Block Dissection of the Neck.

When the flaps have been adequately reflected, a block dissection of the neck is commenced at the circumference of the exposed area, and the posterior, anterior and inferior borders are treated *separatim*. An incision is made through the investing deep fascia parallel to and just behind the anterior border of trapezius, which is now retracted.

The incision described above is then deepened, until the floor of the posterior triangle is reached, and then the interscapular gland is cautiously peeled forwards off the muscles. The only difficulties lie in the inferior



Figures VII. and VIII.
Diagram to Show Extent of Gland Dissection in (i.) early, (ii.) late case.
(The shaded area is that from which all connective tissue, fat and glands must be removed.)

part of the posterior triangle, where the glands are deeply placed, and there is a danger of cutting the phrenic nerve when clearing the *scalenus anterior*.

The internal jugular vein may now be exposed and ligatured, if thought necessary, by partially or completely dividing the sternomastoid at its insertion and retracting the muscle forwards.

The submental and muscular triangles are next cleaned as far as the anterior bellies of digastric and omohyoid muscles respectively.

The sternomastoid is now divided at its origin, and the internal and external jugular veins are tied and divided at a slightly higher level. The muscle and veins are then raised with the contents of both triangles. It is usually convenient to ligature the external carotid (between its superior thyroid and lingual branches, or even at its origin), as well as the lingual and external maxillary arteries, during the course of the dissection. The jugular vein is finally divided just above the posterior belly of digastric, and the contents of both triangles, together with the sternomastoid, are removed.

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TREATMENT OF WAR WOUNDS OF THE KNEE-JOINT AT A BASE IN FRANCE.

By W. G. Dismore Upjohn, M.D., M.S.,
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 Army Medical Corps.

War wounds of joints have an evil reputation, not only for the risk of subsequent disability in the affected joint, but also on account of the severe degree of sepsis which so often follows their infliction. This carries with it the risk of the loss of the injured limb, and in not a few cases the loss of the life of the wounded man. Of all the joints, the knee presents the most difficult problem in treatment. This is partly due to the anatomical conditions in and around it. Its synovial membrane is the largest and most complicated in the body. It possesses multiple pouches, and it communicates with many surrounding bursæ, and sometimes is indirectly connected with the superior tibio-fibular joint.

Septic infection of such a large endothelial surface readily gives rise to the most profound general sepsis, especially so in the case of the knee, where the complexity of the joint cavity and its communications render drainage almost impossible unless one divides and consequently destroys important articular structures.

Owing to this anatomical complexity and the freedom of communication with neighbouring synovial cavities, the surgeon must constantly keep in mind the possibility that a wound in the lower extremity, apparently not near the knee, nor involving it, may nevertheless actually be the source of a subsequent septic arthritis. For instance, in a case of septic fracture of the shaft of the fibula immediately distal to the head, a surgeon removed the head of the bone in the process of cleaning the site of fracture. The superior tibio-fibular joint, thus exposed, became infected, and the infection spread along the tendon of the popliteus directly to the knee, giving rise to a most acute arthritis.

Then, again, when an apparently superficial through-and-through shell wound in the lower third of the thigh is opened up, it is not at all infrequently found that the missile has caused a lacerated wound of the sub-quadricepial bursa.

The septic bursitis is rarely confined to the bursa, but usually passes to the general cavity of the joint, since, in the majority of cases, there is free and direct communication between the two.

In septic compound fractures of the distal third of the femur, the jagged bone fragments, particularly the distal end of the upper fragment, are often driven through the thin overlying muscle into the suprapatellar pouch. The septic fracture, which is dangerous enough, then becomes complicated by a septic arthritis, which is very much more dangerous. This combination generally requires amputation without delay, to diminish the risk of the patient's life.

Even when the joint is not directly involved, it is not unusual to find an infected effusion into the knee when there is a septic wound of the soft parts in the vicinity.

The anatomical complexity of the knee, which is thus a factor in the frequency of its involvement in septic wounds, is also the source of the greatest difficulties in its treatment when septic. For surgical purposes, omitting here any detailed accurate description of the anatomy of the part, the knee-joint cavity may be roughly divided into four parts:—

- (1) The supra-patellar pouch and its extension towards the hip under the *quadriceps femoris* muscle.
- (2) A middle portion corresponding to the part lying dorsal to the patella and the *ligamentum patellæ*.
- (3) and (4) The remainder of the joint, consisting of a lateral and a medial backward extension over and between the condyles of the femur and the head of the tibia.

The lateral and the medial subdivisions are separated from one another mainly by the cruciate ligaments, and they extend upwards on the popliteal aspect of the femoral condyles.

The first part may be drained by incisions into it on either side of the supra-patellar tendon.

The second part is less satisfactorily drained by removal of the patella when it is fractured or by incisions on either side of the patellar.

The third or fourth portion is anatomically the most complex and the most difficult to drain.

It is on account of this difficulty of dealing satisfactorily with these third and fourth portions when infected that simple drainage usually fails in wounds of the knee where sufficient time has elapsed for the whole joint to have become infected. This part of the joint contains on each side the semi-lunar cartilage. There is an extension proximally along the posterior aspect of both condyles of the femur. These are covered posteriorly by the posterior ligament of the knee-joint by the heads of origin of the gastrocnemius muscle, by the distal ends of the hamstring muscles and tendons and by the integuments. The posterior, lateral and medial ligaments and the semi-lunar cartilages are all closely applied to the articular ends of the bones, so that the problem here is to drain a series of irregular clefts or chinks intercommunicating at first but later sealed off more or less from one another by inflammatory lymph. Furthermore, this part of the joint communicates with several large neighbouring synovial bursæ, which often become the sites of secondary pus pockets.

In consequence of the inability to drain the knee without extensive division of its ligaments, I have almost entirely given up simple drainage unaided as a method of treatment, except in occasional cases of comparatively mild sepsis, such as is seen in civil practice.

According to the nature of the missile, wounds may be divided into those inflicted by:—

- (1) A rifle bullet coming from afar.
- (2) A shrapnel ball.
- (3) A shell fragment smaller than a split pea.
- (4) A rifle bullet fired at close range.
- (5) A large shell fragment.

This classification gives, generally speaking, the order of subsequent sepsis to expect; least with a clean bullet wound, most with a ragged shell wound.

Cases belonging to the first class show a typical small wound of entry and a small puncture wound of exit. One or more bones may be drilled, and there may be blood in the joint. The bullet drills the tissues through which it passes, and carries no fragments of skin, hair or clothing along its track. The wounds of entry and exit become rapidly sealed with a small amount of blood clot, and the deep parts are thus shut off from outside infection. Such cases are fixed immovably in a splint, either a Thomas's knee or a plain wooden back splint with foot piece, and the wound is dressed with plain gauze. If there is a very great effusion of blood into the joint, it is removed by aspiration through the smallest convenient needle, but no further operation is performed. Treated in this way, I have never seen any of these simple bullet wounds become septic or require operation. Large incisions into the joint to evacuate blood clot seem to me to be neither necessary nor desirable. By means of syringe, trocar and cannula, one can remove clot with very little risk of converting an aseptic hæmarthrosis into a pyarthrosis. The risk is a real one, when the septic environment of military surgery is taken into consideration. Free movement or fibrous

or osseous ankylosis may follow a bullet wound, according to the site of the bullet track and the nature of the tissues passed through. Wounds inflicted by a rifle bullet fired at close range cause a large, explosive exit wound, the bone is frequently comminuted, and the risks of deep wound infection having taken place before the soldier comes under treatment, are enormously increased.

If the patient arrives with no obvious signs of infection, his knee is immobilized in a Thomas's splint and his wound is dressed antiseptically.

In these cases I have found the Carrel-Dakin technique of great help if the wound is not heavily infected. The wound may be sterilized by this technique, and its further course is that of a simple bullet wound. If severe infection has occurred, radical measures, as for a shell wound, are adopted.

Shrapnel ball wounds occupy, as regard sepsis, an intermediate position between a clean rifle bullet wound and shell wounds, with a distinct tendency to the former rather than to the latter type. The extent of damage to joint structures and the amount of outside septic material carried in, vary within wide limits.

Very small shell fragments may or may not carry in front of them particles of clothing, etc. Happily, they often appear to be unaccompanied into the joint with any outside matter. If one of these small fragments is in such a position that it will not impair the future movement of the joint, if it is so placed that the surgeon must do more damage to the joint by removing it than will be done by the missile if it remains *in situ*, and if there are neither local nor general signs of sepsis, the piece may be left in, while the limb is fixed in a splint and the state of the knee watched for about a fortnight.

If, on the other hand, there is the slightest sign of local or general sepsis, if the fragment is easy to get at, and if, by its position, it is likely to impair future joint movement, it is good to remove it without delay.

Wounds caused by large shell fragments contain other foreign matter carried in, and are invariably septic. The earlier such cases come under treatment the less serious is the prognosis.

Another classification of knee-joint wounds is based on the parts injured, as follows:—

- (1) Wounds affecting soft parts only.
- (2) Wounds associated with damage to one or more of the bones entering into the articulation.

In practice, it is found that injury to bone adds very greatly to the danger of the wound, and has a very distinct bearing on the line of treatment one should adopt. The course followed by each of the two types may thus be briefly sketched.

A wound of the first class may involve the muscles of the thigh, or some of the fascial or tendinous structures about the joint before entering the synovial cavity. Accordingly, infection may occur in the muscular or in the fascial planes of the lower extremity, in addition to the infection inside the joint. This deep sepsis may be very dangerous, even more so than the actual joint inflammation.

If the wound track is excised early and completely, and the joint washed out with saline solution or eusol, and if the opening in the joint capsule is closed, and the limbs rigidly immobilized, it is likely that the

patient will recover in about five days with very little signs of sepsis.

If, however, this early treatment has not been carried out thoroughly, infection is established, the joint becomes distended with turbid fluid, the temperature is raised to about 39.4° C., the pulse is rapid, œdema about the joint and tenderness over the articular margins of the femur are noticed. The patient cannot sleep, his tongue is coated and his appetite fails. If allowed to proceed, the infection soon passes the confines of the joint cavity, and extensive, severe infection follows in the fascial and intermuscular planes of the thigh or leg.

An early stage the endothelial coat of the joint cavity is destroyed by the intensity of the inflammation. Septic absorption takes place through the exposed sub-endothelial vascular plexus and invasion of the blood stream by the infecting organisms quickly follows, particularly if the organism happens to be a streptococcus. The subsequent history is that of a rapidly fatal septicæmia or pyæmia.

In a few less acute cases, amenable to treatment by a wide arthrotomy, the synovial membrane becomes converted into a pulpy, œdematous granulation tissue, the articular cartilages become destroyed by gradual erosion, and are replaced by granulations. Sometimes, though not usually, large areas of articular cartilage flake off. The semilunar cartilages die and separate, pus pockets are likely to occur in the communicating burse, and the final result is a fibrous or partly bony ankylosis of the joint.

Wounds of the second class, that is to say, wounds complicated by bone injury, follow almost invariably a severe course, and are rarely amenable to treatment by excision of the wound of the soft parts alone. At an early date it is necessary that bone should be excised as well.

The bone struck by the missile has fragments of external septic matter embedded in its roughened, broken surface. It is bruised to a considerable depth from this surface, and resists infection poorly. So, even if the synovial membrane recovers from infection, the septic osteitis is a constant source of reinfection, and therefore wounds of this type rarely heal without operative treatment of the injured bone.

Hence the bone sepsis is of greater importance than the sepsis of the soft parts, and often requires radical surgery to shield the patient from the risks of acute septicæmia and pyæmia. Shell wounds, involving the head of the tibia, bear a particularly evil reputation in this respect.

(To be continued.)

Reviews.

DISABILITIES FOLLOWING WAR WOUNDS.

Aug. Broca provides a welcome volume on the motor disabilities following war wounds, in his book entitled *Troubles Locomoteurs Consécutifs Aux Plaies de Guerre*.¹ The work consists of two parts, in the first of which the true and false ankyloses are considered, and in the second, those locomotor defects resulting from cicatrices, muscular troubles, and certain osseous lesions.

The author points out that in true and complete ankylosis, the important point is to know when not to operate. In

deciding this, the most important single factor is the position in which the joint is fixed; secondary considerations are the nature of the ankylosis, and the extent and position of the obstacle.

If the limb is in good position from a functional point of view, it is necessary to weigh very carefully the chances of mobility being gained. If it is in a bad position, it must be brought into a good functional position, quite apart from the question of mobility.

With the lower extremity, every effort should be directed towards gaining solidity, and all ankyloses in good position should be respected.

The problem in the upper limb, however, is quite different; the power of movement is as important as solidity. It may be justifiable to perform resection. The question of intervention in these old recesses of osteomyelitis should be considered soberly, remembering always the tenacity of war-wound infections, and reckoning carefully the possibility of their recrudescence.

To rectify a true ankylosis of the elbow joint fixed in bad position, we may break the ankylosis by hand, or we may resect. Instruments for correcting deformities of the joint have fallen into desuetude. Resection, when it has for aim the return of the ankylosis, but in good position, should take the form of a cuneiform osteotomy, performed subperiosteally. The arm is left fixed at right angles for those whose main needs are concerned with eating and dressing, or at 135° for those who wish to work with a plane or a file.

Broca does not like resections being done in such cases with the idea of gaining movement, since even in the so-called "good results," lateral solidity is sacrificed, and most of the end results are merely flail joints. Extension is then purely passive, and manual workers still need an instrument with a hinged joint and lateral guards. He reminds us that the muscular power after an ankylosis is greater than after a resection, even when the union in the latter case appears solid. The very early "primary" resections were frequently done as life-saving operations, as the best means of draining the joint of a greatly involved limb. The secondary resections, however, performed later for arthritis or ankylosis are quite a different proposition. The systematic use of primary resection for the less severe injuries is wrong, but still less justifiable are the late resections done for ankyloses in good position. Too frequently the results are re-awakened infections, flail joints and useless limbs.

Dealing with false ankyloses, the author considers *seriatim* the methods of treatment, both from the preventive and curative standpoints. It is interesting to note, in passing, that he is not convinced of the efficacy of ionization or of radium therapy. Massage, the various baths and electrical stimulation have their definite place in the treatment, but the main reliance is placed on movement. *Mobilisation brusque* is reserved for the severer forms of false ankyloses.

In the second part, the author considers the disabilities arising from non-articular lesions. In the deformity resulting from radial paralysis, the author has little faith, either in transplantation of the flexor tendons to reinforce the extensors, or in arthrodesis of the wrist joint in slight extension. In practically all cases he prefers a prosthetic apparatus.

In injuries to the sciatic nerve, while the sole can be placed flat on the ground, and while hope can be held out of nerve regeneration, a boot with artificial muscles is the procedure of choice; but when varus begins to develop, arthrodesis of the middle tarsal and sub-astragaloid joints is recommended. It will be seen that the author takes a sober and conservative view of the many problems which arise in connexion with the motor disabilities of our "glorious wounded." It is to be regretted that our own military medical authorities, even at this late stage, have made no worthy effort to deal with a subject on which this book offers such valuable advice.

On the occasion of his retirement from the position of bacteriologist to the Department of Public Health of Western Australia, Dr. C. Shearman was the recipient of a farewell gift from the Commissioner of Public Health, Dr. Everitt Atkinson. In making the presentation, Dr. Atkinson paid a tribute to the valuable services which Dr. Shearman had rendered to the State.

¹ *Troubles Locomoteurs Consécutifs Aux Plaies de Guerre*, by Aug. Broca. Collection Horizon: *Précis de Médecine et de Chirurgie de Guerre*; 1918. Paris: Masson et Cie. Crown 8vo., pp. 155. Price, 4 francs.

The Medical Journal of Australia.

SATURDAY, JULY 20, 1918.

The Toxicity of Antiseptics.

Surgeons on active service have been compelled to seek efficient antiseptics to combat sepsis in infected wounds. The demand has resulted in the introduction of many new substances and in the employment of compounds previously well known, but hitherto not used for this purpose. Under the conditions obtaining in France and Flanders, the irrigation of infected wounds with solutions of the new antiseptics has been attended by remarkably good results. Carrel's method, as a rule, suffices for the purpose, and does not entail any material risk of absorption. There are, however, conditions in war wounds, in which the use is accompanied by a distinct risk of poisoning. When an antiseptic solution is introduced into a more or less closed cavity, especially if the fluid is injected under a positive pressure, an unknown amount may be absorbed and the patient may suffer from toxic effects. It is not excluded that a highly poisonous substance may be absorbed from a granulating or raw surface, even when there is no closed cavity. Some work has recently been conducted at the laboratories of the Rockefeller Institute for Medical Research on the toxicity of a few of the antiseptics in common use. Drs. Herbert D. Taylor and J. Harold Austin have tested the toxicity of these substances by injecting them into the peritoneal cavity of mice and guinea-pigs and into the subcutaneous tissues of guinea-pigs. It must be admitted that it does not necessarily follow that the same laws as apply to mice and guinea-pigs will apply to man, but, in the absence of other evidence, the data obtained from these experiments may be tentatively accepted as the basis for working rules. It appears that chloramine-T and dichloramine-T are relatively dangerous, and should be used with caution when the conditions favour absorption. The authors suggest that if the translation to man were admissible, the lethal dose for a man weigh-

ing 70 kilograms would be 144 c.cm. of a 3% solution of chloramine-T. On the other hand, the hypochlorites are relatively non-toxic. Dakin's solution and commercial Javelle water are tolerated without killing in doses equivalent to 120 mgrs. per kilogram body weight in mice and 30 mgrs. per kilogram body weight in guinea-pigs. The hypochlorites, however, are more toxic to mice than phenol. They found that 500 mgrs. per kilogram body weight of phenol is the largest surviving dose, and, at the same time, the smallest fatal dose. Reference to the records of well-established medico-legal cases reveal that from 80 to 120 mgrs. of phenol per kilogram body weight, applied either through the stomach or the intestine, or in the pleural cavity, have resulted in death. It will therefore be necessary to recognize the possibility that the hypochlorites may be considerably more toxic to man than to mice. But even if the disproportion is as great as it is in the case of phenol, the risk of fatal poisoning would not be present until all the hypochlorite contained in 320 c.cm. of a 0.5% solution were absorbed. If the figures supplied by Drs. Taylor and Austin have approximate significance for man, we should be able to conclude that it would be quite safe to employ the hypochlorites in solution for closed cavities, and that caution should be exercised in the use of chloramine-T and flavine. Iodine occupies a mid-way position.

THE PROBLEM OF THE DEAF SOLDIER.

The Editor of *Recalled to Life* has pointed out in the last issue of that journal that, while a blind man attracts our sympathy, the deaf man is apt to irritate us. The soldier who becomes deaf from war injuries, can find employment in many trades. His disability does not form a special disqualification for any trade, but it is an impediment in all, except perhaps that of political debate. In the same issue, Major Dundas Grant, the President of the Special Aural Board appointed by the Ministry of Pensions, gives an excellent summary of the difficulties that have to be met in the attempt to give the deaf soldier the best chance of competing successfully with his fellow-men in the various walks of life. The problems involved are of a peculiar nature for several reasons. In the first place, the number of totally deafened soldiers is relatively small, although minor degrees of deafness and affections of the ears associated with some loss of function are common. In the second place, while the war lasts, the deaf men, after discharge, find no difficulty in obtaining occupation, usually in a trade selected by them. Later, when the war is over and the uninjured

soldiers claim employment, the deaf man will undoubtedly find that his disability will militate against his continued employment. While labour is scarce, the employers are willing to put up with the inconvenience of having in their service men with whom verbal instructions and ordinary intercourse is excluded or possible only with the exercise of patience and special methods. In the third place, the employment of deaf men in many industrial undertakings is attended by additional risks, since they cannot hear sounds which would warn the normal individual of impending danger. Major Dundas Grant points out that deafness, by removing from the man the possibility of hearing what is being spoken in his immediate neighbourhood, renders him suspicious and introspective. Deaf patients are difficult to approach, and require very careful handling. It will thus be seen that, during the existing circumstances, the deaf man, after discharge from the Army, is usually disinclined to submit to a tiring and unfamiliar form of training, and elects to earn his living as a man isolated from his comrades, morose and suspicious, because of the disability he bears. For the totally deaf and for those whose hearing is very defective, the most important aim of the aurist and of the repatriation worker is to restore to them the capacity for understanding and communicating with their fellow-men. There are several means which can be adopted to achieve this end. In the first place, there is lip reading—the most effective method of communication. The deaf at times attain such skill in lip reading that they can see what is being whispered or spoken by a person at some distance, which the normal person cannot hear. Secret communications conveyed by German prisoners in whispers to one another have been intercepted in this manner by deaf lip readers. A French soldier informed Major Dundas Grant that he could detect that he spoke with an accent, by the difference in the movements of his lips and those of a Frenchman. In an institution for deaf soldiers in Lyons, good results were obtained in 34 cases, relatively good results in seven, indifferent results in four and a bad result in one. In the United Kingdom this form of repatriation work has been begun only recently in Edinburgh by Mr. W. Sibley Haycock. So far, only fifteen men had been dealt with. It appears that methodical instruction in lip reading, extended over from three to six months, suffices to remove the main disability of these men and to enable them to enjoy their domestic, social and industrial life once more.

The next piece of machinery utilized for the assistance of the men under consideration is the aural outpatient clinic, where the expert can undertake the treatment of affections of the ears and minor degrees of deafness, without interfering with the occupation of the patient. In a few cases it is necessary to admit the patients to the wards of the hospitals. The arrangements are carried out by a Special Aural Board, under the Ministry of Pensions. The members of this board are aural surgeons and one teacher of lip reading. Their duties include the training and treatment of the deaf pensioner, the investigation of cases referred to them by the invaliding board on

account of special doubt or complexity, and the organization of treatment for discharged soldiers and sailors suffering from diseases of the ears. It is recognized that some men who cannot be persuaded to learn lip reading at present attempt to converse with the world by means of writing. The ordinary person writing down short sentences for the deaf man to read often scribbles carelessly. Under these circumstances, it is necessary for the deaf man to learn how to read bad handwriting. The finger alphabet is but little used by these men, and has small advantages in ordinary intercourse outside the individual's home or the institutions for deaf mutes. Major Dundas Grant gives an account of the plans for the extension of this work beyond the metropolitan area. Aural surgeons and lip reading teachers have been appointed in many of the districts. The future will reveal whether the energies and ingenuity of the members of the Special Aural Board will benefit deafened soldiers in practice as greatly as their plans on paper promise.

THE FRIENDLY SOCIETIES IN VICTORIA.

It will be remembered that the Victorian Branch of the British Medical Association intimated, after His Honour Judge Wasley had issued his report, that they were prepared to accept the recommendations contained in the report on the conditions that the newly-formed medical institutes be disbanded, and that the medical practitioners appointed as additional medical officers of previously-existing medical institutes be removed. It will further be remembered that the Friendly Societies' Association also determined to accept the findings of the Commission. Resistance is offered by the friendly societies to the acceptance of the doctors' conditions. It is stated that the friendly societies find that their action in establishing the medical institutes has involved them in financial undertakings. If this be the case, the friendly societies have now to determine whether they will meet the cost of their precipitate and unwise action in establishing the institutes, or whether they will attempt to foist on the wage-earner an indifferent medical service. If they elect the latter course, they will alienate the sympathies of the medical profession. It would appear, however, that the friendly societies recognize the unwisdom of basing their refusal to revert to the old order of affairs on this point alone. They, consequently, have introduced a quibble into their acceptance of the findings of the Royal Commission. The point at issue is the rate of remuneration. The language used by His Honour is unambiguous, and bears but one construction. The sentence, "As the financial result to the friendly societies is the same in each case, I think it reasonable that the doctors' suggestion should be adopted" (see *The Medical Journal of Australia*, July 13, 1918, page 40), means in plain English that he recommended the adoption of the 20s. rate for town members and the 25s. rate for country members, provided that the offer of the Victorian Branch concerning the free attendance of dependants of the men at the front, etc., be carried into effect.

THE CONSTITUTION OF LACTOSE.

The more intimate the knowledge that the chemist possesses of the arrangement of the component atoms of any pure substance, the more easily can he explain its behaviour when brought into contact with other materials. Although it is not yet possible to infer the nature of the chemical properties of a compound from a conception of its constitution, this failure is, in part, due to the small scope of the information at present discovered about the architecture of matter. Every investigation which leads to a more extended acquaintance with the plan on which atoms and radicles are joined together in the substances that enter into the composition of living things, supplies additional facts to be utilized in the physiological, pathological and bio-chemical interpretation of vital phenomena. With each new discovery the sphere of rational explanation in medicine is enlarged. We may therefore welcome the valuable studies¹ of Professor W. N. Haworth and Miss G. C. Leitch on the constitution of disaccharides, and, especially, their recent research work upon lactose and melibiose.

The disaccharides are widely distributed throughout the animal and vegetable kingdoms. Three of them—sucrose, or cane-sugar, maltose, and lactose—are closely connected with the nutrition of man. Our present knowledge of their structure is mainly restricted to the elementary facts that these sugars yield upon hydrolysis products that can be recognized as one or other of the simple monosaccharides. Lactose, for example, is supposed to be an anhydride of glucose and galactose. Since lactose possesses reducing qualities, the active terminal group of one hexose sugar must be necessarily preserved in the structure of lactose. Evidence has been obtained by methylation of lactose and subsequent hydrolysis that the reducing property which persists in lactose, is attributable to the glucose residue, and that the similar quality in galactose has become latent by its combination with the glucose molecule. This mode of junction, engaging, as it does, the reducing group of galactose, therefore occurs by combination of this group with an hydroxyl group of the glucose chain. Evidence has been also obtained that the hydroxyl group, concerned in this linking, is that next to the primary alcoholic group of the glucose molecule. It follows that a branched carbon chain is produced by the union of the two molecules of sugar. Again, since lactose is hydrolyzed by lactase, which is a specific enzyme for a β -galactosides, just as emulsin is the specific enzyme for β -glucosides, the two known forms of lactose should be regarded as the α - and β -glucose-galactosides.

REPAIR OF THE ABDOMINAL AORTA.

Suture of the heart and of the large vessels has long since been demonstrated to be possible, and there are several cases on record in which it has proved itself a life-saving procedure. Repair of the large vessels has not been attempted in the human subject. Attempts have been made to apply a ligature to the abdominal aorta, but this has been attended by fatal results in every case. Dr. Charles Goodman¹ has undertaken

a series of experiments with a view to establishing how far the repair of the abdominal aorta can be carried out. In the first place, he has found that dogs tolerate a complete occlusion of the vessel for 30 minutes without any serious consequences. When there is a wound in the wall of the abdominal aorta, a rectangular clamp can be applied, occluding about one-half of the lumen of the vessel. Attempts were made to suture the abdominal aorta after complete transverse division, but this involved so much injury to the walls that thrombosis was the usual result. He found, however, that it was easy to implant a piece of artery from another animal of the same species to fill a defect produced by the removal of a portion of the aorta, or to render it unnecessary to apply traction in the case of transverse section. The homologous transplant heals perfectly, and, after the course of a couple of months, a smooth surface of *tunica intima*, without any evidence of fibrin at the point of suture, is found. In order to overcome the difficulty of obtaining an arterial tube of sufficiently large lumen to fit the cut end of the abdominal aorta, he devised a method of utilizing a portion of the carotid artery of another dog. The carotid artery, after removal, is slit lengthways, and the opened vessel is then doubled on itself. The edges of the two halves are sutured with very fine silk, to form a tube of twice the calibre of the original carotid artery. This transplant may be sutured in place after division of the abdominal aorta without risk of thrombosis. Whether this procedure will be applicable to man must be demonstrated by surgeons in the operation theatre.

THE RED STREAK.

Dr. E. A. Tracy claims that the persistence of a red mark on the skin of the cheek or forehead beyond fourteen seconds after the site has been stroked with a smooth wooden instrument applied with a pressure of approximately 75 grammes, invariably indicates a pathological process.¹ The reflex dilatation of the vessels of the face, according to this author, never lasts more than fourteen seconds, unless the person has been taking a medicament, such as digitalis or pilocarpine, or unless the person is suffering from some pathological condition. In the course of his investigations he obtained the "red streak" in 392 persons, and in 388 of them some diagnosable condition was present. In 310 of these persons the pathological condition was a purulent one, and, of these, the vast majority of the lesions were situated in the mouth or fauces. He states that in mild myxoedema the normal reflex vaso-dilatation, or diastole, as he expresses it, is absent, but it appeared after the administration of thyroid extract. Functional disturbances of the heart also were associated with the "red streak." In four cases out of twelve, the stroking was followed by a partial fading and subsequent intensifying of the streak, representing a visible systole and diastole of the peripheral vessels. It is suggested that the frequent association of the "red streak" with suppuration may be of some diagnostic value. The author has no concern with the mechanism of production of the phenomenon. It would be unwise to speculate as to

¹ *Journ. Chem. Society*, Vol. CXIII., p. 188, March, 1918.

¹ *Boston Med. and Surg. Journ.*, March 21, 1918.

how it is produced, until other observers have confirmed Dr. Tracy's findings that, in the absence of a pathological process, the reflex dilatation of the cutaneous vessels lasts less than 14 seconds, and that, when this reflex is definitely prolonged, some abnormality is present. If this fact can be established, its true significance must be determined by a study of its mechanism.

Naval and Military.

CASUALTIES.

In the 416th list of casualties, which was issued to the public on July 10, 1918, it is recorded that Lieutenant-Colonel Arthur Henry Moseley, D.S.O., has been wounded. There are no casualties among the medical officers of the Australian Army Medical Corps reported in the 417th list.

APPOINTMENTS.

Naval Forces of the Commonwealth.

The following appointments, etc., are notified in the *Commonwealth of Australia Gazette* of July 4 and 11, 1918:—

Royal Australian Naval Brigade.

Harold Henry Field-Martell, L.R.C.P.E., is appointed Surgeon (for temporary service) for a period from 15th December, 1917, to 30th April, 1918, inclusive, and Surgeon (for permanent service) as from 1st May, 1918, with seniority of rank of 1st May, 1918. (That portion of Executive Minute No. 73/1918, promulgated on page 1,229 of the *Commonwealth of Australia Gazette*, No. 83, of 6th June, 1918, relating to the appointment of Dr. Martell as Acting Sub-District Naval Medical Officer, Albany, is cancelled.)

Staff-Surgeon Francis Henry Vivian Voss is transferred to the Retired List as from 9th August, 1917, on reaching the age for retirement, and, on account of the present war, he is to continue temporarily in his present position as Sub-District Naval Medical Officer, Rockhampton.

Temporary Appointments to Permanent Referee Boards.

The following officers are appointed (temporarily) for part-time duty on Permanent Medical Referee Boards, Second Military District, with temporary rank as under, and with the pay of such rank for such periods as they may be employed:—

To be Temporary Lieutenant-Colonels whilst holding the appointment of President, Permanent Medical Referee Board—

Captain (Honorary Lieutenant-Colonel) J. H. Phipps, D.S.O., Australian Army Medical Corps, and Honorary Major D. Gwynne-Hughes, Australian Army Medical Corps Reserve. Dated 8th January, 1918, and 29th April, 1918, respectively.

To be Temporary Major whilst holding the appointment of President, Permanent Medical Referee Board—

Honorary Captain C. Retallack, Australian Army Medical Corps Reserve. Dated 4th March, 1918.

To be Temporary Majors whilst holding the appointment of Member, Permanent Medical Referee Board—

Captain F. W. Doak, Australian Army Medical Corps. Dated 19th February, 1918.

Honorary Captain L. E. Ellis, Australian Army Medical Corps Reserve. Dated 28th February, 1918.

Honorary Captains J. W. Gormley and W. R. Tomlinson, Australian Army Medical Corps Reserve. Dated 4th March, 1918.

Captain (Honorary Lieutenant-Colonel) J. B. St. V. Welch, D.S.O., Australian Army Medical Corps. Dated 29th April, 1918.

¹ The Journal of Experimental Medicine, May 1, 1918.

Public Health.

NEW SOUTH WALES.

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending June 29, 1918:—

| | Metropolitan Combined District, Cs. Dths. | Hunter River Combined District, Cs. Dths. | Rest of State, Cs. Dths. | Total, Cs. Dths. |
|--------------------|--|--|--------------------------------|---------------------|
| Enteric Fever .. | 1 0 .. | 0 0 .. | 5 0 .. | 6 0 |
| Scarlatina .. | 11 1 .. | 0 0 .. | 12 0 .. | 23 1 |
| Diphtheria .. | 38 0 .. | 3 0 .. | 68 1 .. | 109 0 |
| *Pul. Tuberculosis | 14 7 .. | 0 0 .. | 0 0 .. | 14 7 |
| C'bro-Sp'l Menin. | 1 0 .. | 1 0 .. | 1 0 .. | 3 0 |
| Poliomyelitis .. | 1 0 .. | 0 0 .. | 1 0 .. | 2 0 |

* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katonunga Municipality.

VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending June 30, 1918:—

| | Metropolitan, Cs. Dths. | Rest of State, Cs. Dths. | Total Cs. Dths. |
|-------------------------|----------------------------|--------------------------------|--------------------|
| Enteric Fever .. | 1 0 .. | 3 0 .. | 4 0 |
| Scarlatina .. | 34 1 .. | 22 0 .. | 56 1 |
| Diphtheria .. | 75 2 .. | 91 0 .. | 166 2 |
| Pulmonary Tuberculosis | 17 13 .. | 9 2 .. | 26 15 |
| C'bro-Spinal Meningitis | 1 .. | 1 .. | 2 .. |
| Poliomyelitis .. | 1 .. | 1 .. | 2 .. |

SOUTH AUSTRALIA.

The following notifications have been received by the Central Board of Health, Adelaide, during the week ending June 22, 1918:—

| | Adelaide, Cs. Dths. | Rest of State, Cs. Dths. | Total, Cs. Dths. |
|-------------------------|------------------------|--------------------------------|---------------------|
| Scarlatina .. | 1 0 .. | 9 0 .. | 10 0 |
| Diphtheria .. | 6 1 .. | 35 0 .. | 41 1 |
| Pulmonary Tuberculosis | 1 2 .. | 6 10 .. | 7 12 |
| C'bro-Spinal Meningitis | 1 0 .. | 0 0 .. | 1 0 |
| Puerperal Fever .. | 0 1 .. | 1 0 .. | 1 1 |
| Erysipelas .. | 1 0 .. | 3 0 .. | 4 0 |
| Pertussis .. | 0 0 .. | 3 0 .. | 3 0 |

QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending June 29, 1918:—

| Disease. | No. of Cases. |
|---------------------------|---------------|
| Enteric Fever .. | 5 |
| Scarlatina .. | 15 |
| Diphtheria .. | 63 |
| Pulmonary Tuberculosis | 8 |
| Cerebro-Spinal Meningitis | 1 |
| Erysipelas .. | 3 |
| Puerperal Fever .. | 2 |

TASMANIA.

The following notifications have been received by the Department of Public Health, Tasmania, during the fortnight ending June 29, 1918:—

| Diseases. | Hobart. Cases. | Launceston. Cases. | Country. Cases. | Whole State. Cases. |
|-------------------------|-------------------|-----------------------|--------------------|---------------------------|
| Enteric Fever .. | 0 .. | 0 .. | 1 .. | 1 |
| Scarlatina .. | 0 .. | 3 .. | 1 .. | 4 |
| Diphtheria .. | 2 .. | 7 .. | 9 .. | 18 |
| Pulmonary Tuberculosis | 1 .. | 2 .. | 4 .. | 7 |
| C'bro-Spinal Meningitis | 1 .. | 0 .. | 1 .. | 2 |
| Poliomyelitis .. | 0 .. | 0 .. | 1 .. | 1 |
| Puerperal Fever .. | 1 .. | 0 .. | 1 .. | 2 |

WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the week ending June 15, 1918:—

| | Metro- politan Cases. | Rest of State. Cases. | Totals. Cases. |
|---------------------------------|-----------------------------|-----------------------------|-------------------|
| Enteric Fever.. . . . | 3 | 2 | 5 |
| Scarlatina | 34 | 3 | 37 |
| Diphtheria | 17 | 22 | 39 |
| Pulmonary Tuberculosis | 2 | 3 | 5 |
| Erysipelas | 1 | 1 | 2 |

THE CITY OF HOBART.

Dr. Gregory Sprott, the Medical Officer of Health of Hobart, issued his annual report for the year 1917, in March of this year. The following is a summary of the more important matters dealt with in the report.

Vital Statistics.

The population of Hobart was estimated, at the close of the year 1917, at 31,843. The number of deaths registered was 377, and the death-rate 11.80 per 1,000 of population. During the past five years the death-rate has declined steadily from 15.55. In the quinquennial period, 1908 to 1914, it varied irregularly between 9.09 and 14.65. The average works out at 12.09, which is higher than the figure for 1917. The death-rate was lowest in January and highest in June. A table is given showing the distribution of the 377 deaths in age groups. There were 68 deaths of infants under one year of age. This figure represents 18.03% of the total deaths and a death-rate of 89.83 per 1,000 infants living. The infantile mortality is 57.73 per 1,000 births. There were 13 deaths of children between one and five years of age, 179 of persons between 5 and 65 and 117 of persons of 65 years and over.

The total number of births was 1,178. The birth-rate works out at 37.51. This rate has been remarkably unfluctuating during the past six years. The highest record was in 1912 (38.74) and the lowest in 1916 (37.02). During the six years, 1906 to 1911, the fluctuations varied between 25.40 and 33.64.

In dealing with the infantile mortality, Dr. Sprott shows that the reduction from a high rate, namely, 126.23, to that of the lowest rate on record, namely, 57.72, has been achieved in the course of 12 years. He expresses the hope that the early notification of births and the consequent advice given to mothers on the feeding and general hygiene of the infant would reduce this rate still further. At the Baby-Clinic the advice given will not be limited to the infants, but will also aim at the improvement of the health and physical welfare of the mother, which are undoubtedly important factors of the welfare of young infants. "The advantages of natural over artificial feeding must be constantly kept in front of mothers who are inclined to shirk the maternal responsibilities."

Infective Diseases.

During the course of the year, 24 cases of enteric fever were notified. Of these, three were fatal. There were 109 cases of diphtheria, as compared with 163 in 1916. All the patients save five were treated at the Vacluse Hospital. Three deaths occurred; this yields a case mortality of 2.75%. No information is given concerning the day of disease on which the treatment was begun, the frequency of complication or the amount of antitoxin injected. Dr. Sprott points out that when a case of diphtheria occurs in a school child a bacteriological examination is made of the faecal mucus of all children in the same class or classroom. In this way, 126 swabbings were taken. In only nine instances were diphtheria bacilli discovered. This systematic examination gave Dr. Sprott a means of checking the spread of the disease.

There were seven cases of cerebro-spinal meningitis with three deaths, which means that the case mortality was 42.85%. On the receipt of the notification, all those who had been in contact with the patient were isolated and the

premises were disinfected. Contacts were kept under surveillance for ten days. None of these children developed the disease.

There were ten cases of scarlatina, one case of ophthalmia neonatorum, one case of anterior poliomyelitis and one case of varicella. No deaths took place among these patients. Puerperal septicæmia was notified six times, with two deaths. Precautionary measures were taken to prevent the spread of the infection in each case, the midwives in attendance were prevented from having anything to do with other patients for 21 days after their last contact with the infected patient. Dr. Sprott expresses the opinion that provisions should be made for the accommodation of persons suffering from contagious diseases which are not notifiable. When a case of morbilli, varicella or parotitis occurs in a boarding-house or an hotel, there is no place to where the patient can be taken. He suggests that some accommodation could be set aside at the hospital at Vacluse.

The number of cases of pulmonary and laryngeal tuberculosis reported was 46 and, of these, 15 were fatal. There was one death from tuberculosis of other parts of the body. The Department had records of 114 patients who were suffering from tuberculosis. These patients were visited periodically and advice was given as to the precautions to be taken to minimize the risk of infecting other members of the household. Dr. Sprott recognizes the necessity of dealing with persons in the early stages of consumption in sanatoria and with those in the late stages in homes. He sums up the prophylaxis of this disease in four words: notification, education, isolation, disinfection.

In close association with the subject of infective diseases is that of disinfection and that of the Infectious Diseases Hospital. A few words are added on each of these subjects.

General Hygiene.

The control of dairies was carried out under difficulties prior to the amendment of the Public Health Act in 1917. The presence of cow-sheds in congested areas of the city is highly undesirable. During the course of the year, 138 applications were received for the licensing of dairies and cow-sheds. Three of these applications were refused and, in six instances, the license was withheld, pending the completion of improvements. Samples of milk were analysed on 135 occasions. In six cases the milk was found to be adulterated, and prosecutions were instituted.

Four tons of food-stuff were destroyed as being unfit for human consumption. The control of the food supply appears to be adequate. In one respect, however, the regulations are defective. While manufacturers of ice-cream are required to register, those of ices are not. The method of conveying meat from the abattoirs to the butchers' shops leaves much to be desired. It appears that this is undertaken by hired carriers, who are not in the employment of the butchers and therefore not subject to the regulations. Dr. Sprott reports the general improvement in the hygienic arrangements at factories.

He calls attention to the lack of sanitary conveniences at the various reserves and the small amount of open spaces within the city confines. He records that improvements have been carried out in several of the graveyards. Twelve registered noxious trades are carried out much to the annoyance of the persons living in the neighbourhood. Apparently, there is no immediate prospect of the institution of a noxious trade area.

A large number of rats were destroyed by means of baits. The City Council supply ratepayers free of charge with tins of rat poison, on application.

During the course of the year, 16 houses were condemned and four were demolished. In 59 cases notices were sent out requiring the owners to effect minor repairs. In the majority of cases these repairs were effected.

In the last place, Dr. Sprott bewails the inactivity of the Department in neglecting to erect a refuse destructor. The need for this has been urged for 16 years. It does not appear to us that the reason for the refusal at present, namely, the question of cost, is a valid one.

Abstracts from Current Medical Literature.

SURGERY.

(18) Extraction of Projectiles from the Lung.

M. Debaisieux reports (*Bulletins et Memoires de Société de Chirurgie*, January 15, 1918) five cases of early extraction of intrapulmonary projectiles. Operation was performed after a delay varying from 2 to 14 hours from the receipt of the injury, and immediately following on skiagraphic examination. The technique followed was that of Duval, one rib being resected for 10 to 12 cm., the pleura incised, and Tuffier's retractors employed. The foreign body was removed either from through the wound of entry, or from a counter opening made near the locality indicated by the skiagram. The pleura was then sutured and the chest wall closed without drainage. One of the patient's succumbed six days after operation from broncho-pneumonia and gangrene of the lung. The other four were evacuated on the high way to recovery. In one of these four, a hæmoculture revealed the presence, after operation, of pneumococci in the blood, and a series of intravenous injections of peptone was given successfully. In another, there was considerable subcutaneous emphysema in the region of the neck. In the fatal case, a piece of grenade bomb had lodged in the base of the left lung, and the projectile was extracted after resection of the left fifth rib. Five days later, broncho-pneumonia appeared in the whole extent of the lung operated on; the expectoration was bloody, and later fetid. The right lung became affected very quickly, and the patient died on the sixth day.

(19) Acute Abdominal Affections.

Acute abdominal affections are discussed by John B. Deaver (*Medical Record*, January 12, 1918). He points out that the initial symptoms of acute perforating or gangrenous appendicitis do not differ greatly from those of a simple uncomplicated acute attack. Later the persistence of pain and extension of tenderness to adjacent areas, together with the increase of the pulse-rate and of muscular rigidity, establish the true condition. Gangrene of the appendix is very misleading, owing to the variety of clinical pictures presented by it. Sometimes this is due to the anatomical position, but in other cases the onset is so insidious that no marked change in the local condition is noticed. When an appendix perforates, the immediate symptoms are not so urgent or so alarming as those of a ruptured gastric or duodenal ulcer. The patient as a rule vomits only once in the early stages, thus distinguishing it from obstruction or strangulation. He emphasizes the danger of purgation in cases of appendicitis, and believes in immediate operation in cases of less

than 40 hours' duration. In progressing peritonitis of more than 40 hours' duration, delay is the best policy, and he presages death if operation be undertaken at this time and in the presence of diffuse peritonitis. Lavage he considers harmful. He agrees with Mayo that perforation of the gall bladder is one of the most fatal types of perforation, and insists on the danger of repeated attacks of cholecystitis causing pancreatic trouble. The mortality of acute pancreatitis is very high in unoperated cases, and even in the author's cases treated surgically, was 21%. He classifies three types: the ultra acute, which is rapidly fatal in three days; the acute in which there is necrosis, gangrene, and suppuration of a part of the pancreas, and in which recovery is the exception; and the subacute, the most common type, in which the lesion is limited to the head of the pancreas, and hæmorrhage unusual. He recommends early operation by the trans-peritoneal route. In the hæmorrhagic form, tampons must be applied and tube drainage employed. Longitudinal incisions are made into the pancreas to give exit to the blood and secretions, the Fowler position used, and the patient kept on a typical anti-diabetic diet.

(20) Post-Operative Pulmonary Complications.

In *Surgery, Gynecology and Obstetrics*, December, 1917, Elliott C. Cutler and J. J. Morton report the result of a study of the pulmonary sequelæ occurring in 3,490 cases operated on at the Massachusetts General Hospital. There were in all 65 such cases, including lobar and broncho-pneumonia, bronchitis, pleurisy, empyema, pneumothorax, mediastinitis, pulmonary embolism, and lung abscess. They are inclined to discredit the possibility of a true anæsthetic pneumonia, and consider as important factors in the causation the presence of an unappreciated lung condition, the aspiration of mucus or vomitus, the existence of oral sepsis, and the loosening of septic emboli from the site of operation. A poor general condition, and the needless prolongation of an operation are predisposing causes. A badly given anæsthetic will naturally increase the risk by permitting the inhalation of mucus. A too radical operation opening up of the pathways to the lungs such as in the neck region, especially in the presence of sepsis, must also predispose to pulmonary sequelæ. Operations in the epigastric region are more prone to such complications than those done in the lower abdomen. Post-operative pain results in defective expansion of the lungs, and this leads to hypostasis. They emphasize the importance of asepsis, and of the avoidance of unnecessary trauma, and point out a common mistake is the careless exposure of patients who are sometimes allowed to lie through a long operation wet with discharges or with lotion. More freedom in bed is advised, and the patient should be allowed to get out of bed as soon as is consistent with

safety. It is also suggested that the wound should be closed with silk, so as to do away with the need for supporting bandages, which restrict the proper expansion of the lungs.

(21) Injury to Semilunar Cartilages.

Philip Kreuscher, commenting on a case of internal derangement of the knee joint (*Surg. Clinics*, Chicago, August, 1917), recognizes several types, ætiologically, of semilunar cartilage disease. There are, first, fracture or dislocation of the cartilage due to direct external trauma, second, malposition or fragmentation due to internal trauma, and third, loosening and fraying of the cartilage due to chronic synovitis or osteo-arthritis. The coal miner and the footballer are the most common sufferers, and the internal cartilage is more frequently involved than the external, in a ratio variously estimated at from 20:1 to 50:1. In coal miners the mechanism of injury is easily understood. The patient working in a stooped position and using his knee as a fulcrum for the shovel handle, suddenly twists his femur on the tibia in such a way as to loosen the cartilage. In other cases there is a sudden, unexpected trauma to the upper end of the tibia, causing loosening, and occasionally fracture, of the anterior half of the cartilage. Stab or puncture wounds about the knee-joint frequently separate or fracture a portion of the cartilage, and Kreuscher quotes a case from Murphy's clinics in 1914 in which a woman falling struck a broken bottle, causing a deep gash internal to the patella. This was followed by frequent attacks of locking of the joint. The treatment is surgical. Bandaging, extension, plaster casts, and all types of appliances have failed to relieve the trouble permanently. He operates, following Murphy, 7 to 10 days after an attack of locking, when coffer-damming of the tissues has occurred. Trendelenberg's position is used with the knee flexed over the end of the table. A right-angled incision is made after a tourniquet is applied high up in the thigh. No hand contacting or gauze sponging is allowed. The cartilage is always removed whole. A Buck's extension with the weight of 5½ kilograms is used for a fortnight after the operation, and the patient allowed up on crutches at the end of three or three and a half weeks.

GYNÆCOLOGY AND OBSTETRICS.

(22) The Vaginal Plug.

The treatment of antepartum hæmorrhage by means of the vaginal plug is one of the oldest devices of surgery, yet, according to E. H. Tweedy (*Trans. Roy. Acad. of Med., Ireland*, Vol. XXXV., 1917), it is only within recent years that the method of applying the plug has been properly understood, and he asserts that statistics have proved that in its efficiency the plug has no rival. The method depends for its efficiency on the capacity of the plug to push the lateral

fornices of the vagina far up into the abdomen. The technique is as follows: The left hand is passed into the vagina and the palmar surface directed towards the hollow of the sacrum, while the tips of the fingers lie behind the cervix small pieces of cotton wool squeezed out of lysol solution, each the size of the thumb's knuckle, are then taken and inserted by means of the right hand round the cervix. When the vagina is thoroughly and tightly packed in this way a T-shaped bandage is applied to keep the plug in position and an abdominal binder is fastened tightly from above upwards, to press the side walls of the uterus against the vaginal dam. A plug so applied will cause immediate cessation of hæmorrhage. He disapproves of the method recommended by Berkeley and Bonney for plugging the vagina, and is of opinion that they could meet with more success if they used the plug as before directed. The explanation that the bleeding is stopped by the back pressure on the blood vessels, caused by the out-poured blood above the plug, is erroneous. The true explanation is that the plug acts directly as a compressor of the uterine vessels. This can be proved during the performance of Cæsarean section, for after the delivery of the child and the stitching of the uterine wound, if the assistant passes his hand into the vagina and presses it into the lateral fornix, his hand forms a prominent convex tumour which can be seen to press the base of the broad ligament upwards above the level of Poupart's ligament, and on this tumour the uterine vessels lie, and it can be demonstrated that the bleeding of these vessels is stopped by the pressure, and if the observer presses the fundus of the uterus downwards to reproduce the conditions induced by the abdominal binder, the fingers of his assistant will become nipped between the resistance below and the side wall of the uterus. He points out that the opening of the internal os removes from the lateral fornices the support that it formerly afforded, and thus allows the fornices to be pushed as far up into the abdomen as required. The vaginal plug is not so easy to apply, and sometimes fails. In such a case it must be removed and re-inserted. Sir William Smyly agreed with the author that when a failure the plug was not properly applied. He asserted that when he became Master of Rotunda Hospital, version and extraction were accepted as the only rational treatment in cases of severe accidental hæmorrhage, but the results were so bad that he abandoned it and had recourse to plugging. He considered concealed internal hæmorrhages were altogether different from cases of external hæmorrhages, and were generally, if not always, associated with eclampsia or other toxæmias, and the effusion would be as often found in the peritoneal cavity as in the uterus, or in both, abdominal section was the treatment in such

cases. Sheill suggested that the fist-in-the-vagina method would be of great service during Cæsarean section as a hæmostatic during placental removal and uterine suture. Solomons said he found the treatment of external accidental hæmorrhage by vaginal plugging infallible. Barry said he always discarded gloves when plugging the vagina, as with them he found it difficult to place the plug efficiently.

(23) Pelvic Infection.

S. M. D. Clarke (*New Orleans Med. and Surg. Journ.*, April, 1918) complains that there is a lack of standardization in treatment of pelvic infections. He quotes J. B. Murphy's pathological résumé and exposé on pelvic infections, and recommends a thorough understanding of the pathology of the disease. He is of opinion that the vagina in 90% of deliveries is more or less damaged, but that serious puerperal infections do not arise. It is quite the opposite in the case of injuries to the cervix where infection may be followed by parametritis, pelvic thrombophlebitis, and acute sub-peritoneal cellulitis. Except in the virulent and staphylococcal cervical infections, Nature usually stops the process by favouring resolution or suppuration. The area of placental attachment is a frequent source of venous infection, giving rise to thrombophlebitis a week or two after delivery. The tubes become infected by a direct surface infection from the endometrium, occasionally by direct lymphatic invasion. Pseudo-puerperal abscesses form; these abscesses do not clear up with draining like the simple connective tissue abscess before mentioned. If not of gonorrhœal origin, puerperal tubal infection clears up rapidly under proper treatment. In abortions and miscarriages the routes of infection are the same, but the cervical route is not so common, as it is usually less damaged. After this brief résumé, he considers the rational line of defence against infection. There is no specific treatment other than prophylaxis. Inflammatory reaction resulting from infection is not a disease, but is Nature's method of defending itself; therefore, in any puerperal infection, after all secundines are accounted for, the plan of treatment resolves itself into one of masterly local inactivity, combined with thorough constitutional treatment. He strongly opposes the curette, intra-uterine douche, vaginal douche, wiping out of uterus and numerous examinations. If the placenta and membranes are intact at the time of birth the uterus should be left alone. If there is some doubt, it should be emptied with the least amount of traumatism. The finger and surgical sponge forceps are usually all the instruments that are needed. The patient's general constitution must be treated. The following means are employed: sunshine, fluids by mouth and by rectum (glucose and bicarbonate "drip") and abundant nourishment, and sponging for fever. Local interference is deprecated; most exudates will reabsorb. Should suppuration supervene,

drainage from below will be required. Infected abortion cases should be treated on the same broad plan. The majority of these cases clear up except the gonococcal infections. He recommends in a case of non-puerperal infection, e.g., gonorrhœal, a postponement of the operation until the acute stage has passed, when it will be unnecessary to use drains, as the pus is already sterile. He considers that after the rest plan it is unnecessary to operate in many cases. By waiting until the exudate clears away, the maximum conservatism can be practised, as the segregation of diseased from healthy tissue then becomes quite easy. After a time the patients establish their own immunity. He is of opinion that to Simpson's four commandments: (1) acute illness past, (2) temperature not above normal for three weeks, (3) no elevation of temperature after pelvic examination, and (4) inflammatory exudates completely destroyed, should be added a fifth, namely, that the blood count should be normal. Under these rational lines Simpson's mortality was 0.3%, and when he operated in the presence of severe exudates the death-rate was 12.5%, and with slight exudates 4.6%. The disadvantage of the rest plan of treatment is the loss of time and its cost. Against this many operations may be avoided by the results of the preparatory treatment. He advises conservatism in the case of infections of the tubes and ovaries. In case of repeated acute attacks he recommends surgery after pre-operative rest, and also recommends prolonged post-operative quietude whenever certain parts of the sexual apparatus are conserved.

(24) Split Pelvis.

Anantanarayana Iyer (*Madras Med. Journ.*, January, 1918) asserts that only nine cases of split pelvis have been recorded in literature, and that they are usually associated with *ectopia vesicæ*, an imperfect condition of the lower portion of the abdominal wall. He is of opinion that from an obstetrical point of view this kind of deformity does not present any hindrance to natural delivery. Any defects arising are due to improper mechanism resulting from the deficiency in the abdominal wall. He quotes a case of a woman who was in labour at full term with her second child. She had strong uterine contractions; the lie of the child was the right occipito-anterior. The lower portion of the abdominal wall was a raw, irregular surface, covered over by mucous membrane (posterior wall of bladder); the ureters could be seen, and urine was constantly dribbling away. There was a gap of about 5 cm. in the mid-line, between the pelvic bones. There was no urethra. There was marked flaring of the anterior superior iliac spines. The vagina was very narrow, admitting only a finger. Episiotomy was done, and the child was delivered with slight fundal pressure. Probably the woman would have delivered herself but for the narrow vaginal orifice. The puerperium was uncomplicated.

British Medical Association News.

SCIENTIFIC.

A meeting of the New South Wales Branch was held at the B.M.A. Building, 30-34 Elizabeth Street, Sydney, on June 28, 1918, Dr. A. A. Palmer, the President, in the chair.

Before calling upon Dr. Campbell to give a demonstration, the President referred in sympathetic terms to the death on active service of Lieutenant E. C. Rennie, the son of Dr. George E. Rennie, a past President of the Branch. A resolution of condolence with Dr. Rennie was passed, all members standing.

Dr. A. W. Campbell gave a demonstration with lantern illustrations on cerebral tumours. He felt that there was no need to excuse himself for selecting this subject, because every case of cerebral tumour was interesting, because no two cases were alike, and because each case was a study in itself. To the physician, cerebral tumour offered a problem in diagnosis. To the surgeon it offered an opportunity for the exhibition of surgical skill, and to the physiologist it gave some promise that information could be obtained regarding the function of a certain portion of the brain, although, as a rule, the lesion was not circumscribed enough for this purpose and the picture was often clouded by the diffuse effects of increased intra-cerebral pressure. Tumours of the brain were always of interest to the pathologist; unfortunately, the majority of these growths found their way into the post-mortem room. In these circumstances, he proposed to give a demonstration of slides collected during a long experience, both in hospital and in private practice.

The tumours could be classified according to their clinical effects, according to the region in which they were found, or according to their pathological kind. He proposed to group his cases according to the pathological variety. In the first place, there were benign growths. He exhibited a macroscopic picture of a fibroma in the parietal region, lying between the fissure of Rolando and the parieto-occipital lobe. These tumours were believed to arise from the periosteum of the bone, and were always situated on the surface of the brain. It was a question whether they were true fibromata, because the delicate fibrils seen in fibromata of other regions of the body could not be demonstrated in them. They were essentially slow-growing, and often failed to produce symptoms. The picture shown was the brain of a woman, aged 73, who had had no headache, no vomiting and no optic neuritis. Quite late a hemiplegia developed. In another picture he showed the same tumour from its inner surface, implicating the *lobulus quadratus*. From the picture of the brain from which the tumour had been removed *post mortem* he was able to substantiate his opinion that the tumour could scarcely have been successfully removed during life. Its removal would have entailed the ligation of the superior longitudinal sinus. In the next place, he showed a fibroma in the frontal lobe, which could easily have been removed during life, but it had produced no signs, and its presence was first recognized in the *post mortem* room. A third fibroma was also exhibited. This large tumour was situated immediately behind the ascending parietal convolution, and was remarkable because it produced no symptoms, notwithstanding its position. Cushing had reported a similar case. A fibroma springing from the base of the occipital bone, and pressing on the *pons* and *medulla* was next dealt with. This tumour had gradually produced signs referable to interference with the *pons* and the *medulla*. A series of pictures illustrating the extent of involvement and the anatomical relations of the tumour was utilized to demonstrate the curious feature of the case, namely, that the patient had lived so long with such a terrible growth.

The next specimen shown was an example of a tumour of the cerebello-pontine angle. These growths were frequently called acoustic fibromata. The term was not a good one, because many were not fibromata at all. The diagnosis of these tumours was easier than that of any others. It was based on an interesting triad of symptoms. In the first place, there were symptoms of nerve pressure. These included deafness, due to pressure on the acoustic nerve; facial paralysis or paresis, and paralysis of the fifth nerve, including anaesthesia of the face and weakness of the pterygoid and masseter muscles. The second symptom was homolateral ataxia, due to pressure on the cerebellar

peduncle. The third essential symptom was contralateral hemiplegia, due to pressure on the pyramidal tract. These tumours had at times been successfully removed, but in the case illustrated on the screen it was obvious, as Dr. Campbell pointed out, that surgical removal was impossible. At times the growths were small and pedunculated, and were then more amenable to operative interference. His patient was an adult, but he had seen a similar tumour in a child. On microscopical section, this tumour was found to be composed of large endothelioid cells. The small blood vessels had thickened walls and large lumina. These changes were well seen in microscopical preparations, both with high and low magnification. Under the high power the vascular changes were very distinct, and calcareous deposits were also pointed out.

The next group of tumours with which Dr. Campbell dealt were the angiomata. He showed the picture of one of these tumours, which was extending along the *lobus pyramiformis* and the *uncus*, and affected the tip of the temporal lobe. Angiomata were congenital tumours, and usually gave rise to no signs. The subject of the specimen exhibited was a school-master, aged 50 years, who, for the greater part of his life, had had no symptoms of any cerebral disturbance. Shortly before his death he was seized with epilepsy, with olfactory aurae. He had died in *status epilepticus*. A vertical section through the brain revealed the spread of the tumour to the lenticular nucleus and optic thalamus. Usually, the angiomata were associated with naevoid growths in various situations of the skin. There were no naevoid growths in this case. A microscopical section projected on to the screen revealed typical thin-walled blood vessels filled with blood cells; the younger blood vessels were chiefly aggregated at the edges of the growth, and were growing in an irregular and purposeless manner. In one or two parts of the section there was the appearance of early gliomatous changes, which led Dr. Campbell to suspect that it was beginning to undergo malignant degeneration.

The second large group of tumours was the malignant. Dr. Campbell pointed out that gliomata were the most frequent, the most devastating and the most hopeless, surgically, of all cerebral growths. In the first specimen it was seen that the tumour, centred near the *genu* of the *corpus callosum*, was spreading in all directions. It had produced severe headache, violent vomiting and marked optic neuritis, as well as the cardinal signs of increased pressure. The latter made the localization of such a tumour difficult. He showed a picture of the glioma of the frontal lobe, which was utilized to demonstrate the effect of increased intracranial pressure on the sulci. The walls of the sulci had become almost perpendicular, and in the fresh state were flattened and pressed close on one another. The cerebrospinal fluid in these cases was very markedly diminished. Dr. Campbell demonstrated several gliomatous tumours in different parts of the brain. He dealt more especially with one which had been particularly interesting from the point of view of localization. The patient was a child, aged six years, under the care of Dr. Litchfield at the Children's Hospital. From the signs he had thought that the tumour was situated somewhere in the neighbourhood of the cerebello-pontine angle. There was obviously pressure on the red nucleus and on the pyramidal tract. After death it was found that the tumour had started in the posterior horn of the lateral ventricle. The pressure on the red nucleus and pyramidal tract had given rise to ataxia and paresis on the opposite side. Pressure on the *corpus geniculatum externum* had caused deafness, while pressure on the optic thalamus had given rise to homonymous hemianopsia. In connexion with this case, Dr. Campbell pointed out that children seemed to bear cerebral tumours with less suffering than adults. In particular, they had little headache. This was probably due to the fact that the skull and the *dura mater* were less rigid in children than in grown-up persons. Decompression operations were superfluous in children, and were not recommended.

The next picture shown was of the brain of a child containing a tumour of the fourth ventricle. Dr. Campbell stated that Virchow would have called it an ependymal glioma. It was seen on the picture that it had leaked out from the hinder end of the ventricle, and that it had spread out over the cerebellum. The cerebellum looked as if tallow had been poured on it. An operation had been contemplated, but, fortunately for the child, death had taken place before

preparations could be made. A diagram was also exhibited, showing other anatomical relations of the tumour. A microscopical specimen demonstrated the typical structure of a glioma. The field was occupied by numerous large, swollen glial cells, and the glial processes were running in all directions. The nuclei of the glial cells were largely eccentric. The cells were about five times the size of a normal white blood cell. Dr. Campbell pointed out that this typical appearance was not always met with, and that at times it was difficult to determine whether a given growth was a glioma or not. At the edges of the tumour considerable collections of round cells were frequently met with, and these cells lent the appearance of sarcoma. Tooth had stated, on the experience of 500 tumours, that primary sarcoma of the brain was very uncommon. Cushing had maintained that it did not occur at all. Gliomata were liable to hæmorrhagic and to cystic degeneration. Specimens showing both forms were exhibited.

While gliomata were usually disastrous tumours leading to exquisite suffering and early death, they occasionally underwent degenerative changes, and apparently became absorbed. He referred to a case in which the skull had been opened, only to reveal an inoperable condition. The patient's friends were told of the hopeless prognosis. Apparently, this tumour had undergone some form of degeneration, for the symptoms disappeared, and the patient had got well. The opening of the skull could do no harm, and might even do good.

Dr. Campbell showed a series of photographs, illustrating secondary melanotic sarcomata involving the brain. He pointed out that these specimens were interesting only from an anatomical point of view. The growths were always on the surface, and never extended into the depths of the brain. Microscopical sections were also shown. In one case he demonstrated the involvement of Broca's convolution. In this case there had been no aphasia—an observation of considerable interest to the physiologist. He was sure that this case would have gladdened the heart of Marie. In the next place, Dr. Campbell showed an instance of a carcinomatous tumour of the brain. The growth was a secondary one. He pointed out that primary carcinoma of the brain practically did not occur.

Tuberculous growths of the brain were uncommon. He showed one specimen with the lesion in the optic thalamus. The nature of the growth was proved histologically by its structure and by the presence of a large number of tubercle bacilli. Another uncommon tumour of the brain was gumma. He had only seen four or five instances. He showed a series of pictures illustrating a syphilitic affection of the pituitary gland. In another case a marked dilatation of the *tuber cinereum* was seen. The pituitary gland was intact, although it had been flattened by the growth. Blindness had resulted from pressure on the optic chiasma. The cyst in this case communicated with the third and the lateral ventricles, and caused dilatation of them. The patient was a general paralytic.

Before dealing with tumours of the pituitary body, Dr. Campbell exhibited a skiagram of a normal skull to demonstrate the natural situation, configuration and size of the *sella turcica*. This picture was contrasted with a skiagram of a skull showing marked enlargement and alteration of shape of the *sella*. The picture was taken from a person, aged 26 or 27 years, who manifested the signs of acromegaly. There was marked puerilism. The genital organs were like those of a boy of 14. There was no hair on the axilla or on the pubes. He had not yet used a razor. His limbs were rounded and fat. He was eunuchoid in disposition. Some four or five years before he had suffered from intense headaches, and he was rapidly going blind. Cushing's operation of sellar trephining had been suggested, but the patient's friends would not give their consent. Shortly after this, the patient began to improve, and the improvement had been maintained. He was now able to read moderate-sized print fairly well, and his symptoms had disappeared to a large extent. Nature had apparently performed a decompression operation for him.

The antithesis of this case was exemplified in the case of a boy of 11 years with precocious sexual development. This boy had been the patient of Dr. Macdonald Gill. The genital organs in this child had attained the development of that of a boy of

17 or 18 years. He had died somewhat suddenly. Dr. Campbell had expected to find a tumour of the pineal gland. He had not been present at the *post mortem* examination himself, but had found that the pineal gland was little, if at all, enlarged. There was a tumour in the lateral ventricle lying in the *velum interpositum* in the middle line. It had the red colour, and something of the appearance of a piece of placenta. On microscopical examination, it was found that the main mass of the tumour was altered blood. Portions of the tumour contained collections of endothelioid cells presenting an acinous formation. There were also arrangements of fibres which were either non-medullated nerve fibres, or non-striated muscle fibres. The case was a rare and an interesting one.

Dr. Campbell then demonstrated a case of tumour invading the pons varolii and *medulla oblongata*. The first symptoms that had been noted were due to nuclear paralysis of the sixth nerve on the right side. There was paralysis of the right external and the left internal rectus. Later, there was paralysis of the fifth nerve, and still later the seventh, eighth and ninth nerves became involved. The patient died suddenly. It was found that the pons and *medulla* were infiltrated by small round cells, but that this process had not destroyed the crossed fibres of the pons or the pyramidal tract. The superior cerebellar peduncles were flattened and the lumen of the fourth ventricle was almost obliterated. Dr. Campbell demonstrated how the pons and *medulla* had been invaded by the insidious growth at each level.

In concluding his demonstration, he pointed out that it was easy to diagnose a cerebral tumour confidently, but it was not so easy to diagnose its nature or its localization. He referred to the claim of a certain German observer that he could localize 90% of his cases with accuracy. Dr. Campbell knew of no means which would ensure such a result. In his own series of 53 cases the localization was either wrong or impossible in 16. He suggested that if the American system of working, such as that carried out by Cushing, were adopted, more accurate diagnoses might be arrived at. This meant that the patient was sent on to the ophthalmic surgeon, to the aurist, to the rhinologist, to the radiographer and to various other specialists, and the neurologist built up his diagnosis with the aid of reports from these numerous practitioners. He pointed out that optic neuritis was the safest standby in the diagnosis of cerebral tumour, but that it was not always present in these cases. In some of the slow-growing fibromata it might be absent. On the other hand, optic neuritis occurred in other conditions, such as lead poisoning, as Dr. Lockhart Gibson, of Brisbane, had pointed out. Dr. Campbell stated that he was conscious of having made many mistakes in diagnosis, and there were probably others of which he was unconscious, but he could, however, remember only one case of possible lead neuritis, in which a tumour had been diagnosed and decompression recommended and carried out, needless to say, with excellent results.

He regretted to say that, from the surgical point of view, tumour of the brain represented a very hopeless condition. Only six of his 53 cases could be regarded as safely and radically operable. He deplored this fact, more particularly because many capable workers had studied the subject and much progress had been made. He regarded it as a great advance that the osteoplastic flap had been introduced, since this procedure yielded the surgeon a large area of brain to work in. He was satisfied that sub-temporal and sub-occipital decompression represented very useful advances in brain surgery. In this connexion, he warned the surgeon not to perform sub-temporal decompression on the left side in cases in which there was doubt concerning the localization of the lesion. It not infrequently happened that this operation was followed by the appearance of aphasia. In referring to the various attempts that had been made to apply surgical relief in cases of lesions situated at the base of the brain, he stated that the avenues of approach were, like the path to Heaven, narrow, straight and difficult.

Dr. A. E. Mills thanked Dr. Campbell for his valuable demonstration. He referred to his well-known thoroughness and supreme modesty. He raised the question whether the term optic neuritis should be applied for the changes in the disc resulting from increased intracranial pressure. He held that it was more accurate and better to use the term papilloedema. This condition was also noted when the increase of pressure was due to increase of cerebro-spinal fluid.

Referring to the case spoken of by Dr. Campbell, of tumour of Broca's convolution, he asked whether any apraxia had been present. He suggested that motor aphasia had largely been discarded by neurologists. He also questioned whether a lesion of the *corpus geniculatum externum* would lead to deafness. If there were any auditory fibres in this situation, they must be very few. As an alternative suggestion, he stated that possibly the deafness was produced by the effects of increased intracranial pressure.

Dr. J. Burton Cleland added his congratulations to Dr. Campbell on his excellent demonstration. He considered that the photographs of the gliomata which had been exhibited were very instructive. He pointed out that these tumours were epiblastic in origin, and consequently belonged to the same category as the new growths of the skin. In support of this, he called attention to the fact that neither gliomata nor rodent ulcers formed metastases. Dr. Campbell had referred to the rarity of primary sarcoma of the brain. He suggested that, since the bulk of the brain tissue was composed of nerve fibres and neuroglia and of fine-walled capillary vessels, the growth would have to develop from the lining walls of the vessels. The preponderance of neuroglial cells rendered it more probable that they would be concerned in a pathological process than the less numerous cells of the vascular walls. Consequently, a glioma should be much more common than a sarcoma. He suggested that the outlying cells referred to by Dr. Campbell in his description of the gliomata were, in reality, reactionary cells.

Dr. W. F. Litchfield considered that Dr. Campbell's communication was of great importance from a practical, scientific point of view, and should not be regarded as merely academic. At the Children's Hospital cerebral tumours were by no means uncommon. Many of these cases were very puzzling. He wished to refer to two cases. The first was in a dark child, aged 7 years, who complained of headache and vomiting, and suffered from mental obtuseness terminating in irritability. There was no optic neuritis. A provisional diagnosis of cerebral tumour was made. The urine contained albumin. After a short period of treatment in hospital, the symptoms cleared up, and the child was discharged. She was readmitted later with a return of all her symptoms, and eventually died of unmistakable uræmia. The second patient was a fair child, aged three years, who also exhibited symptoms of cerebral tumour, namely, headache, vomiting and mental clouding. In this case optic neuritis was present. The diagnosis, therefore, seemed to be confirmed. Lumbar puncture was performed, and the general condition improved. All the signs, except the optic neuritis, cleared up. The child got quite well. He raised the question whether this was not a case of lead poisoning. Dr. Lockhart Gibson had expressed the view that lead poisoning was more common in Sydney than was usually supposed. This case was contrasted with another in a child, aged five. The symptoms were of gradual onset, and included headache, vomiting and some retraction of the head. A provisional diagnosis of tubercular meningitis was made, notwithstanding the fact that some optic neuritis was present. The symptoms cleared up, but the optic neuritis persisted. The diagnosis of lead neuritis was taken into consideration, and Dr. Temple Smith kept the child under observation for several weeks. He was inclined to the opinion that the changes might correspond to what was known as pseudo-optic neuritis. Later, an attack of fever and vomiting supervened, and then headache. From that time the child steadily went down hill, and eventually died with all the symptoms of hydrocephalus. The lesion was a cerebral tumour. He pointed out that hydrocephalus in children was not an uncommon association of cerebral and cerebellar tumours. He thought that in these cases there was a disturbance in the balance between the absorption and the secretion of the fluid. He also referred to the absence of optic neuritis in cases of cerebral tumour. Dr. Campbell had referred to an instance of this in connexion with a pontine tumour. Before concluding, he detailed the events in the case of a patient admitted to the Royal Prince Alfred Hospital under the care of Dr. Charles MacLaurin. An attempt was made to remove a cerebral tumour, but the operation had to be interrupted on account of serious bleeding. The patient died of pneumonia before the second attempt could be made. In this case, the diagnosis of a tumour of the pontine angle was confirmed *post mortem*.

Dr. J. Macdonald Gill referred to the question of lead poisoning in children, a subject on which Dr. Lockhart Gibson had written several papers and had spoken at congresses.

He had seen only four cases in children in Sydney. In its most characteristic form this condition gave rise to the symptoms of basal meningitis, with retraction of the head and optic neuritis. He did not agree that many cases were overlooked in Sydney.

His case, of which Dr. Campbell had spoken, was one of great interest. The boy had been admitted with symptoms of diabetes insipidus. At first there was no headache and no optic neuritis, but later headache set in, and the discs were not quite normal. There were no other symptoms. Death had taken place suddenly. As far as he was aware, the tumour was almost unique.

Dr. A. J. Brady called attention to the fact that pyogenic diseases of the brain were also associated with optic neuritis. He held that anything that caused an increased intracranial pressure could give rise to optic neuritis. Cerebral abscess was no exception. Fortunately, these pyogenic conditions offered a better prospect than the solid tumours of the brain. He referred to the difficulties in localization in cases in which a suppurative lesion was present in both ears.

Dr. L. M. McKillop, of Brisbane, who had previously been welcomed as a guest by the President, complimented Dr. Campbell on the lucidity of his descriptions, and on the fact that he had avoided all useless packing. He spoke of a case of pituitary cyst, which Dr. W. N. Robertson had dealt with by drainage through the nose and ethmoid. In this case the operation was performed in such a manner that renewed drainage could be applied, should the cyst refill. In the next place, he dealt with a case of an endothelioma in the cerebellum. Decompression was performed, but the patient died suddenly. It was not uncommon in these cases for the patients to lose their headache a few days before death, which always took place quite suddenly. He also referred to the occurrence of pyrexia in pontine tumours.

He assured the meeting that lead poisoning was extremely common in Brisbane. It had also been noted that eclampsia was more common in Brisbane than elsewhere, and, it was suggested, that the patients probably had suffered from lead poisoning in childhood. The other signs of plumbism were persistent squint and nephritis. The diagnosis was often difficult. The presence of basophilia was regarded as characteristic. The most successful treatment, in addition to lumbar puncture, was the exhibition of magnesium sulphate.

Dr. F. P. Sandes, after thanking Dr. Campbell for the highly instructive and interesting demonstration, referred to the somewhat hopeless prospects for patients with a cerebral tumour. He was hopeful, however, that progress might be made in the localization of these tumours, and that the ingenuity of surgeons might lead to better results. He referred to the well-known incident when the late Sir Victor Horsley collected at the National Hospital, Queen's Square, London, eleven patients, and introduced them to visitors. Each man held a bottle containing a tumour which Sir Victor had removed from his brain. He admitted that the difficulties the surgeon had to contend with were often very real. He recalled a case in which all the signs pointed to a tumour in the left lower frontal convolution. The skull was opened, but no tumour was found in this situation. After death it was discovered that the whole of the temporosphenoidal lobe had been involved. In another case which he had seen with Dr. Mills, there was a tumour in the Rolandic area. In order to approach the tumour, an osteoplastic flap had been turned down. Two days later there was increase of headache, blindness, etc., and all the signs of hemorrhage. An exploration of the area beneath the flap revealed a blood cyst. The subsequent history of the patient was a sad one. *Hernia cerebri* necessitated repeated shaving off of the extruded tissue, and a deplorable condition supervened, which increased until he was released by death.

Dr. H. S. Stacy referred to a case of pituitary tumour which he had had under his care not long before. X-rays had proved of great value in the diagnosis. The classical symptoms of bitemporal hemianopsia had been present. Instead of doing an endonasal operation, he had adopted a direct approach through the supra-orbital region. This was done by nibbling away the bone, little by little, till the *sella turcica* was reached. Unfortunately, he had allowed the fluid to escape too quickly, and, in consequence, the patient had died. He was satisfied that this operation was less mutilating and easier to perform than any other method.

Dr. A. W. Campbell replied briefly to the various speakers. He expressed his indebtedness to them for the appreciative manner in which they had received his communication. He

felt that the discussion was contributory rather than critical. He agreed that papilloedema was probably a more correct term than optic neuritis. The latter was used as a matter of habit. He could not say from memory whether the patient with the tumour in Broca's convolution had apraxia. The point he wished to emphasize was that she was talking normally the day before she died. Lesions situated in the *corpus callosum* were more likely to lead to apraxia. Referring to Dr. Mills's objection to his explanation of the deafness in the case of tumour involving the *corpus geniculatum externum*, he pointed out that there was a distinct connexion between the first temporal lobe and the external geniculate body.¹

He did not agree with Dr. Cleland that the infiltrating cells in gliomata were reactionary cells. True reactionary cells, as met with in the neighbourhood of acutely produced lesions, were very different. Sudden death occurring in cerebellar disease was usually due to displacement of the medulla. And, concerning hydrocephalus in such cases, there was always some interference in the circulation of the fluid between the fourth and lateral ventricles, the latter being often obliterated. He agreed with Dr. Brady that pyogenic lesions gave rise to neuritis in the same way as solid tumours did. In a brief reference to the localization of tumours, he agreed with Dr. Sandes on the importance of paying close attention to the first symptoms. As a rule, only a hazy history on the onset was obtainable. The patient was rarely reliable in these cases, while the relatives usually were not able to give a clear account of the beginning of the illness.

Obituary.

ROY ALLEN SILLAR.

It is with great regret that we recorded in last week's issue the death of Roy Allen Sillar, which took place on July 4, 1918. He left Australia on March 3, 1918, as a Captain in the Australian Imperial Force, Army Medical Corps, and arrived in England approximately two months later. During May and June he remained with his unit before orders came to proceed to France. On the last day of June he met with an accident, falling from his horse. He is stated to have received a concussion of the brain, which proved fatal four days later.

Roy Allen Sillar was the second son of Mr. J. W. Sillar, the Manager of the Bank of Australasia at Dubbo, New South Wales. He was born in 1895, and was educated at the Dubbo District Public School. In 1909 he obtained a scholarship in chemistry, and was dux of his school for two years before leaving. In 1912 he matriculated, and entered as a resident student at St. Andrew's College, University of Sydney. At the University he gained both the No. 1 and the No. 2 Horn Scholarships. He proved himself a very capable student, and gained both the affection and respect of his comrades and teachers. In 1917 he obtained the degrees of Bachelor of Medicine and Master of Surgery. He held house appointments for a time at the Royal North Shore Hospital and at St. Vincent's Hospital, North Sydney. He then obtained his commission, and, as stated above, left the Commonwealth in March of this year. Two of his brothers are also on active service.

Correspondence.

ANÆSTHESIA FOR DENTAL OPERATIONS.

Sir,—The following is a return of the general anæsthetics administered at the Melbourne Dental Hospital from July 1, 1906, to June 30, 1918, viz., a period of twelve years.

All the administrations have been given in the upright position, the patient sitting in the dental chair. There has not been one fatality, and it is extremely rare to have any

¹ Dr. Campbell inadvertently made the mistake of saying external instead of internal geniculate body.

sign of collapse. Of the total number of 32,236 administrations, 30,433 were cases in which ethyl chloride or somnoform was used alone, or in conjunction with other anæsthetics. The present method is to use 2 c.cm. of ethyl chloride in conjunction with 5 c.cm. of somnoform in the majority of cases. We found that 5 c.cm. of somnoform by itself did not always give a sufficiently long enough anæsthesia when a large number of teeth had to be extracted. The anæsthesia is what may be called a "push anæsthesia," in that the air valve, which is circular, and not less than 1.25 cm. in diameter, is gradually closed over and not completely closed until the patient is just about fully under, viz., from three-quarters to one minute from the commencement of the administration.

I am very strongly opposed to the knock-out form of anæsthesia when the ethyl chloride or somnoform is administered in a completely closed inhaler, without any admission of air during induction.

The following is the complete return from July 1, 1906, to June 30, 1918, in detail, and speaks for itself. It is a record of which any hospital might feel proud.

| | |
|---|--------|
| Nitrous oxide | 1,654 |
| Nitrous oxide and ethyl chloride | 3,778 |
| Ethyl chloride | 11,969 |
| Somnoform | 13,859 |
| Ethyl chloride, CHCl ₃ , and ether | 51 |
| Ethyl chloride and ether | 91 |
| Ethyl chloride and somnoform | 485 |
| Ethyl chloride and oxygen | 197 |
| Nitrous oxide and oxygen | 138 |
| Chloroform | 11 |
| Nitrous oxide and somnoform | 3 |

In the 13,859 somnoform cases, a number of those in which 2 c.cm. of ethyl chloride was given with the 5 c.cm. somnoform is included.

Nitrous oxide has been practically abandoned as an anæsthetic in this hospital since the end of 1915; in fact, in only 145 cases has nitrous oxide been used since June 30, 1912, the semi-open ethyl chloride or somnoform administration having been found to be more convenient in every way, and I certainly think quite as safe.

Yours, etc.,

R. W. HORNABROOK.

Melbourne, Victoria, July 7, 1918.

Proceedings of the Australian Medical Boards.

VICTORIA.

The following have been registered, under the provisions of Part I. of the *Medical Act, 1915*, as duly qualified medical practitioners:—

Greenwood, Cecil Danforth, c/o. W. A. Attenborough, Esq., Irving Avenue, Armadale, M.R.C.S., Eng.; L.S.A. Lond. 1883.

Name restored to the Register:—

Barnard, Charles Edward, 280 Latrobe Terrace, Geelong, M.R.C.S., Eng.; L.R.C.P. Lond., 1873; M.B. et Ch.M., 1874; M.D., 1876, Aberdeen.

Alteration of Name:—

Sarah Maud Campbell changed to Sarah Maud Ashley.

The name of the undermentioned deceased practitioner has been removed from the Register:—
Macdonald, Archibald.

QUEENSLAND.

The undermentioned has been registered, under the provisions of the *Medical Act of 1867*, as a duly qualified medical practitioner:—

George, Sydney, Longreach, M.B., Ch.M., Univ. Sydney, 1916.

Births, Marriages and Deaths.

The charge for inserting announcements of Births, Marriages and Deaths is 5s., which sum should be forwarded in money orders or stamps, with the notice, to arrive not later than Tuesday morning in order to ensure insertion in the current issue.

DEATH.

TODD.—On July 10, 1918, at a private hospital, suddenly, Ada Isabella, beloved wife of Dr. R. F. Enever Todd, of 67 Wycombe Road, Neutral Bay, Sydney, only daughter of the late Robert Ball, of Chesham, Bucks., England, and sister of the late R. H. Ball, of Angaston, S.A.

Books Received.

MEDICAL DISEASES OF THE WAR, by Arthur F. Hurst, M.D., F.R.C.P.; Second Edition, Revised and Enlarged; 1918. London: Edward Arnold; Demy 8vo., pp. 319, illustrated. Price, 12s. 6d.
AMBULANCE DE "L'OCEAN" LA PANNE, travaux publiés sous la Direction du Dr. A. Depage, Tome I., Fascicule II. (Décembre, 1917). Paris: Masson et Cie; London H. K. Lewis & Co., Ltd.; Royal 8vo., pp. 590. Annual subscription for two volumes, 30 fr.
A DIABETIC MANUAL FOR THE MUTUAL USE OF DOCTOR AND PATIENT, by Elliott P. Joslin, M.D.; 1918. Philadelphia and New York: Lea & Febiger; Demy 8vo., pp. 187, illustrated. Price, \$1.75.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xvii.

In future, no advertisements inviting applications from medical practitioners for positions in public institutions will be accepted unless the appointment is limited to medical practitioners who are ineligible for military service, or who have returned from military service. The term "ineligible for military service" is used to signify practitioners who are above military age, those who have offered their services and have not been accepted by the military authorities, or those who, for valid reasons, are incapable of applying for a commission in the Australian Army Medical Corps.

Winton Hospital, Queensland, Surgeon.

Royal Alexandra Hospital for Children, Camperdown, Temporary Relieving Ophthalmic Surgeon.

Department of Public Health, Brisbane, Assistant Bacteriologist and Pathologist.

Renwick Hospital for Infants, Sydney, Honorary Physician; Resident Medical Officer.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London W.C.

| Branch. | APPOINTMENTS. |
|--|--|
| VICTORIA. (Hon. Sec., Medical Society Hall, East Melbourne.) | All Friendly Society Lodges, Institutes, Medical Dispensaries and other contract practice. Australian Prudential Association Proprietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club. |
| QUEENSLAND. (Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.) | Brisbane United Friendly Society Institute. Townsville Friendly Societies' Medical Union. Cloncurry Hospital. |
| SOUTH AUSTRALIA. (Hon. Sec., 3 North Terrace, Adelaide.) | The F.S. Medical Assoc., Incorp., Adelaide. Contract Practice, Appointments at Renmark. |

| Branch. | APPOINTMENTS. |
|---|---|
| WESTERN AUSTRALIA. (Hon. Sec., Health Department, Perth.) | All Contract Practice Appointments in Western Australia. |
| NEW SOUTH WALES. (Hon. Sec., 30-34 Elizabeth Street, Sydney.) | Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phoenix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Parramatta, Auburn and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend. |
| TASMANIA. (Hon. Sec., Macquarie Street, Hobart.) | Medical Officers in all State-aided Hospitals in Tasmania. |
| NEW ZEALAND: WELLINGTON DIVISION. (Hon. Sec., Wellington.) | Friendly Society Lodges, Wellington, N.Z. |

Diary for the Month.

- July 20.—Northern Suburbs Med. Assoc. (N.S.W.).
 July 23.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.
 July 25.—S. Aust. Branch, B.M.A.
 July 26.—N.S.W. Branch, B.M.A.
 July 31.—Vic. Branch, B.M.A., Council.
 Aug. 2.—Q. Branch, B.M.A.
 Aug. 7.—Federal Committee of the British Medical Association in Australia (Sydney).
 Aug. 7.—Vic. Branch, B.M.A.
 Aug. 9.—S. Aust. Branch, B.M.A., Council.
 Aug. 9.—N.S.W. Branch, B.M.A., Clinical.
 Aug. 13.—Tas. Branch, B.M.A., Council and Branch.
 Aug. 13.—N.S.W. Branch, B.M.A., Ethics Committee.
 Aug. 14.—North Eastern Med. Assoc. (N.S.W.).
 Aug. 15.—Vic. Branch, B.M.A., Council.
 Aug. 15.—City Med. Assoc. (N.S.W.).
 Aug. 20.—N.S.W. Branch, B.M.A., Executive and Finance Committee.

EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.

The Honorary Librarian of the New South Wales Branch of the British Medical Association is anxious to complete the series of the *Lancet* at present in the library of the Branch, Volume I., January to June, 1898, Volumes I. and II., January to December, 1908, and Volume I., January to June, 1909, are needed for this purpose. The Librarian will be grateful if any member who is able to present to the library one or more of these missing volumes, either unbound or bound, will communicate with the Honorary Secretary of the Branch, Dr. R. H. Todd, B.M.A. Building, 30-34 Elizabeth Street, Sydney.